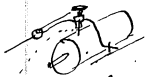
Notebook, E-4297

This notebook covers the period February-December 1903, with a few entries from 1912. It contains notes and drawings transcribed by Edison from other notebooks, including many entries from N-03-02-27.1 and entries related to material in N-03-12-29 (see "Notebooks by Edison"). The experiments pertain to a variety of matters, including electricity, electromagnetic radiation, phonographs, photography, and telephones. There are also lists of chemical compounds under headings such as "gelatinous substances," "gummy chemicals," "soapy chemicals," "pitchy masses," and "chemicals which can be drawn into threads"; and a list of slides used to test compounds that fluoresce with radium, with an indication that the radioactive samples were received from William J. Hammer. Other entries deal with amplification, phonograph recording and record molding, x-rays, storage batteries, and experimental apparatus combining cathode and other vacuum tubes with electrical devices. The first page is inscribed "Volume No. 2 Expmtal Researches." The book contains 404 numbered pages; many pages are blank.



Phonogh with glass cylinder removable
Connected like a record, Insulated point X
of various metals — instead of glass various
metals etc very highly polished & cleaned by
abrasion & quickly used — The point is insulated,
The point is connected to any source of energy
Xyz Elec Etc, and adjusted close to cylinder
where cylinder runs out use a phono with
20 Threads to inch & put point on a lever having
saphire edge resting on cylinder but not in
track of the record, This will take care of
eccentricities of cylinder — Idea is based
on fact that coins laid on glass & then
removed leave an invisible record which become
visible when breathed on, also when the
coin does not touch the glass — there is some
emination given off that produces a peculiar
surface — perhaps a ~~stress~~ wave will do
same thing or by using metal as we could
get developed by Iodine ~~Hg & other~~ vapors —
There is a big field here, The point could be
adjusted to 1/1000 inch of surface,
Photo Emulsion could be put on glass cylinder & record
made in dark room — Phono could be regulated to
go slow —

Gelatinous Substances

Acetate of Cadmium
Allophanate of Sodium
" " Glycerylf
Allylate of Potassium
Allyl Sulphide.
Apiin
Anicine, neutral sulphate, dries to horny mass
Caproate of Potassium Jelly—
Carmufelic Acid Earth metal salts gelatinous
Cetyl-Xanthic Acid Zinc salt "
Chondrin
Chrysanisic Acid Co+Cu salts "
Cumylide of Potassium "
Curarine Horny mass
Ferrocyanides of Tin + Zinc Gelatinous
Cyclamin
Daphnin Lead salt. "
Delphinine Sulphate "
Elemi Resin NH_4 Converts to "
Sulphethylate Copper — ditto Gold — "
Ethylene Oxysulphydrate forms crystalline salts which at 100.C. Glutinous
Euchroate of Ag Gelatinous
Euxanthate Ag "
" ammonia gives with Cupric salts a jelly
Bromeuxanthic Acid. its salts are Gelatanous
Chloreuxanthic Acid " "
Nitroeuxanthic " "
Fibrin Gelatinous
Formate of Tin "
" Uranium "
Gallotannate of Antimony I " ditto Fe salt;

Oxyquanine gelatinous
Dichloroharmine jelly
Benzo-helicin gelatinous
Imasatin action KOH "
Inosic acid Aq salt "
Galapinotate ammonia jelly
Lauric acid Sodium salt " opaque
Lecanoric acid Calcium salt gelatinous
Meconic acid Calcium " "
Morindin "
Mycomelic acid " transparent
Chloronaphthalic acid Lead salt "
Nitrate Zirconium basic salt "
Nitrosacharose glutinous ropy
Parellic acid gelatinous
Pectic acid pectates "
Pyromeconate ~~Magnesium~~ no ? mean Aq salt gelatinous
Quinone precipitate with basic acetate Pb gelatinous
Racemate of Nickel "
Salicin acids seperate it from H_2O "
Saponin Neutral Pb acetate gives " precip
Silicate Soda "
Solanine sol in acids seperated by alkalis gelatinous
Salts Solanine dissolve Alcohol gelatinous masses
Succinate Lead basic salt sticky glutinous
brittle on cooling
Sulphoglutinic acid action of sulphuric anhydride in excess of Naphthalene. glutinous
Trichloronaphthylsulphurous acid ammonical cupric salt filimentary jelly
Tetrachloronaphthylsulphurous K salt gelatinous
Sulphate Alumina Tetra basic salt transparent
vitreous fracture transparent jelly when wet.

Amylsulphate of Alumina gelatinous
Mercuric salt soapy +
Syntonin Muscle fibre gelatinous
Tartrate Lead "
Tellurite of Cadmium "
Theobromine dis In Baryta water to white jelly when solid
Stannic Acid gelatinous dries to hard translucent
lumps like gum arabic
Stannate of Ammonia gelatinous
Metastannate Potsm "
Metalungstic acid colloidal "

Gummy chemicals

Aconitate of Calcium gum-
Amylamine Sulphate gummy
Amygdalic acid "
Anise oil p 298 Vol Watts mentions gummy salts
Sulpharsenate Tin gummy
"arsenite " "
Asparatate of Magnesium - "
Benzoic acid action chlorine tough gummy mass
Dibromacetate Lead tough ——— " "
Camphorimide " transpt
Chlorocerotic acid gum—
Chelidonine acetate gummy
Citrate Alumina gum.
" Baryta mono gummy mass
" Mg "
Conine action Br- "
Dulcisulphuric acid Ba salt gum transparent
Filicic acid Na salt gummy
Furfurine Phosphate " mass
Epichlorhydrin action NH_4 " "
Nitrosacchrate Pb "
Argyrescin under Horse chestnut " "
Hydrocinnamide after fusion trans amorp gum.
Acetolactate Ba gum. Copper salt amorph gum.
Methylactate Ag amorph gummy mass.
Malate Aluminum trans gum. Cu salt gummy
Iron salt gummy
Mandelic acid melts to gum.
Mannitic acid gummy mass
Sulphomolybdates Cerous salt gummy
Morphine pyrotartrate fissured gum.
Oxalate Vanadium blue gum— translucent.
Dimethoxalic acid gummy mass.
Parabenzene action H_2SO_4 forms an acid Ba salt gummy

Hypophosphite Alumina thick gum when evap in
Vac dries to shiny gummy brittle mass ditto
Glucinium salt—
Phosphate Titanium gummy
" Zirconium " translucent when dry insol H_2O
Pyrophosphamates of NH_4 + K gummy
Pyroracemic acid B Kind forms amorph + gummy salts
Pyrotartaric acid Mg salt gummy very friable mass.
Pyrotartrimide dis Pb oxide dries to gummy mass
Quinates Yttrium + ferric salts gummy
Quinovin amorp resembles Gum.
Saccharic acid. Ferrous salt gummy
Seleniocyanate Mg amorph Gummy Mass—
Selenite Al Transp't gummy mass
Zinc salt " " fissured—
Sulphocyanate of Sinapin melts solidifies
to gummy mass.
Solanine heated sealed tube with ethylic iodide
salts gummy
Xanthic acid Calcium salt Gummy
Ethylene-sulphurous acid Pb salt tough gummy mass
Sulphato-acetic oxide "
Ethylsulphuric acid Aluminium salt Gummy
Metatartaric acid Transp't Gummy Mass.
Glycotartaric acid black amorph mass.
Diacetotartaric acid Transp't gummy mass.
Aceto-tartaric ether action sodium gives transp't
gummy substance,
Tellurous acid K salt soft gummy coagulum
Stannic acid dries up to translucent gum.
Meta tungstic acid sticky gummy some salts gummy
Sulphomolybdates Gummy Amorphous.
Gum Dextrin. Gum tragacanth, Slippery Elm gum
Cherry tree gum. gum Arabic, plum tree gum.
Quince gum. Sunflower seed gum.

Soapy chemicals

Amylate of Potassium
Talc
Graphite,
Earth nut oil saponified gives hard soap
Iodide Cadmium
Meerschrum.
Beechnut oil soap therefrom.
Cinnamic acid action chlorine tough greasy curb,
Leucates K salt a soap
Mandelic acid K salt white easily friable
soapy mass.
Ricinelaidic Acid unctous tacky
Amylsulphuric acid Ca salt soft to touch
Mecuric salt crys nodules soapy + glutinous
Veratrol chlorine acts to make unctious mass.

Glassy + Transparent.

Amarine Hydrochlorate. trans mass.
Azobenzidine amorph "
Azobenzoyl "
Liquidamber Transparent.
Monobenzoicin, Benzoate Glycyl. at 40° C transpt
drawn into threads
Biborate Ethyl Transparent glass,
Camphoramic acid " Vitreous
Cinnamein Transparent
Cinnamene " glass.
Metacinnamine highly refractive glass like sub cut
with knife ord temp softens by heat can be drawn
out in threads
Citrate Lithia amorph limpid
" Glyceryl yellow transparent mass difficult
pulverize insol H_2O Al or Ether
Citrate Glyceryl basic ditto but melts 100 C.
Convolvulin drans resin.
Delphinine Sulphate, transparent mass.
Diffluan Vitreous "
Nuleisulphuric acid Ba salt gum Transpt
Fumarimide Transpt Resinous mass.
Garcinia Mangostana Resin Transpt amorph.
Glycerotartrate Calcium a glass.
Hydrocinnamide after fusion transpt gum.
Hyocholoïdic acid. Sodium salt in Alcohol perfectly
Transpt Varnish
Malic acid Pb salt Transparent pitchy amorph.
Menthol action Sodium Transpt mass.
Jethuride Methyl Nitrate Transpt amorph.
Permolybdic phosphate tenacious transpt mass
Sulphomolybdates Manganese salt trans Varnish
Neutral soaps of alkalis dissolved Alcohol +
distilled down + poured yellow glassy transparent;
Melted Sugar. Molasses;

Myroxocarpin Transpt glass
Tetrachloride of Dibromochloronaphthalene
heated above MP remains soft transpt amorph.
Oil Nutmegs deposits solid Camphor absorbs
11% HCl. + melts to transpt mass.
Codliver oil treated alcoholic ammonia forms
large quantity amide MP 93 C becomes solid
and transpt perhaps other oils do same.
Olivil Resin transpt
Sulphopicranic acid Transpt amorph.
Oxalate alumina " "
" Vanadium Translucent, blue gum.
Oxyquinine colorless transpt mass when fused
Pelosine Transpt Varnish Amorph.
Under Phenyl Benzoyl Watts Benzhydrolic —
Succinate Transpt Amorph.
Orthophosphate Alumina acid salt gummy fuses
to a glass.
Hexametaphosphate Magnesium dries to soft
tenacious Ammon Mg Phos dries to brittle
transpt mass.
Metaphosphate Ag melts to glass - insol water
Hexmetaphos Ag soft at 102 C + high temp
melts to glass. insol H_2O
Tetrametaphosphate Sodium precip gummy
Even when diluted 100 times when precip by
Alcohol mass ropy like rubber dries to
transpt fissured mass insol.
Phosphato Tantalic acid fuses to colorless glass
Orthophosphate Di Zincic salt. Melts transpt
glass insol H_2O
Quinine acetate fuses to colorless glass.
Chlorate Transpt Varnish Valerate solidifies
from solution as a glass.
Quinotannic acid. when mixed with Gallotannic A
dries to transpt Varnish.

Ethyl Racemocarbonate. one modification Transpt,
Rubian Dricoto transpt gum.
Rubichloric acid Pb salt, Transpt mass.
Stearate Ni Mang. Lithia transpt, glassy.
Selenite Zinc Transpt. gummy fissured mass.
Silicate soda
Gelatin.
Collodion
Silicofluorides Mg salt Transpt. gummy
Sulphonaphthalene mp 70 c solidifies transpt
Vanadious Sulfate blue Transpt
Sycocerylic Alcohol. after strongly heated
solidifies to transpt glass.
Sylvic acid Mg salt transpt resin.
Metatartaric acid transpt gummy mass.
Diacetotartaric acid "
Acetotartaric " " by action Sodium
Tetratartaric " " amorph.
Borate Lead. fused
Fused Borax.
" Microcosmic salt.
" Phos Lime

Pitchy Masses.

Hydride Chrisyl P Pentachloride converts to Pitchy Mass.
Brunotic acid "
Doppferite Pitch.
Tribromodioleic acid Ba Salt pitchy
Rosolic acid Pitch amorph
Sterine Pitch
Coal Tar Pitch.
Burgundy pitch
Woodtar pitch.
B.S. "
Petroleum distilling Pitch,
Sludge acid Pitch
Pitch from distilling Stearic acid.

Wax Waxlike, Waxy

Anamirtin waxy—
Andaquico wax
Amylmercaptide of Mercury.
Anrade waxy mass.
Dexchloro-camphor wax
Ceropic acid waxy mass.
Cerosin Sugar cane wax
Coca. wax from Cocaine mfg
Geocenic acid. waxy acid from Lignites
Hevecne distillation of Rubber action Chlorine forms Wax
Cerotic acid waxy
Melissic " "
Hydrides of alcoholic radicals higher series
will doubtless be found solid waxes.
Ceralene Waxy } under Hydrocembons Watts,
Melissene " }
Laurie acid. wax
Diamylene—Lepidine resembles paraffine.
Maltha Mineral Tallow
Myrtle wax
Myricin wax in beeswax insoluble in alcohol.
Bromotrichloronaphthalene B modifictn Wax like,
Hexachloronaphthalene Waxlike.
Ocuba Wax used in Brazil for Candles.
Oleamide action alcoholic NH_4 on oil almonds
Semi transpt at 75 C possibly good phono for mixing
or direct.
Palmitic acid. Wax
Myristic " "
Mannitic Palmitate solid white melts to wax
Palm wax hot alcohol seperates it into true wax & a resin
Peucedanin waxy mass from Masterwort
Aniline in Sulphide of Carbon converted in few days fatty mass

Ricinelaïdin solid fatty body action N perox on castor oil.
Selenium tetrachloride on reaction gives a wax
Myristin from Beeswax silky aspect,
Common Lilac leaves have waxy sub extracted by Ether.
Angelica Wax from Angelica Balsam.

Resinous Chemicals

Anisic Alcohol condd by H_2SO_4 to Resinous mass.
Nitroanisidine Br converts "
Bebirine heated with Chromic A Resin
Cerotene action Chlorine " Transpt.
Chinoline " " "
Cinnamate of Cinnyl Resinous
Nitrocinnamic Anhydride Kneadable Resin.
Codeine action Cl Resin amorph.
Colophene " Resin
Conine " Br oxdzd to "
Convolvulin " Transpt.
Crotonol distillation, Resin
Croton Oil. saponified Peculiar Resin —
Fumarimide Resinous Mass ~~Transpt~~
Garcinia Mangostana Resin ~~Transpt~~ Amorph.
Harmaline Sulphate. Resin —
Jalapin " Amorph
Triphenyl-leucanilinic brittle non-basic Resin.
Myroxocarpin Cl converts to Resin —
Marignaca Trinitronaphthalene adhesive resinous substance
Naphthionic Acid Nit acid containing Nitrous makes Resin.
Naphthalamine Chlorine forms Resin —
Olivil. Transpt Resin
Dioxybenzoic Acid action Nitrous fumes Resinous mass
Melaniline Hydrochlorate, action Cl a resin on Oxalate a Resin —
Phlorizin HCl converts to amorph Cl. to Resin.
Quercite = Nitroquercite Amorph Resin
Quinine trihydrate Resin.
" Hydroiodate Melts to Resin
Hydroquinine Resin amph.
Chlorosalicin Resinous
Bromosulphosalicylol. "
Monochlorosaligenin "
Saliretin "

Salvia - Sage oil - Nit acid converts to Resin.
Trichlorosantonin Alkalis Convert to "
Sassafras Oil H_2SO_4 converts "
Sinamine when heated Resinous
Sulphocyanate of Sinapine heated with ~~Sulphuric~~ Iodine, Resin
Solanine, Acetic Nit A Resin.
Naphthylmeconamic amph heated with Nitrite K Resin
Tungstate Alumina, Resinous lumps when dry
Vitreous mass conchoidial fracture,

Ductile Chemicals

Sulphuraresenate Silver ductile cake.
Mercury Phosphide may be cut with Knife
Silver Sulphide amorph wax cut with Knife
" Chloride " " "
" Bromide " " "
" Sulphide after fusion " "
Horn lead. Pb Cl I think or oxychloride after fusion —
Sulphide Molybdenum —
Sulphur in certain conditions
Gutta Percha, Rubber, Balatta, Celluloid.
Vulcanized hard rubber hot, Gelatin, glue,

Chemicals which can be drawn into threads

Mecca balsam, balm of Gilead. Drawn out in threads
Monobenzoicin Benzoate of Glycyl at 40 C can be drawn out in threads,
Metacinnamine softens heat, drawn into threads, glass like cut with knife ord temp —
Glutin, vegetable gelatin drawn into threads
Oleate Mannityl colorless waxy becomes soft tenacious gentle heat
Pasto Resin Viscid capable extended very tenacious fibres which gradually harden when heated above 100 C. Elastic like Rubber
Tetrametaphosphate Sodium precip in Alcohol ropy like Rubber. drics to transept frosted mass not ooh H_2O
Thymol absorbs NH_3 melts at 100 C can be drawn into threads
Viscin from Mistletoe waxy can be drawn out into threads
Gelatin action Cl. flakes filaments elastic
Rosin, Pitch, glass, sealing wax, gutta Percha
Rubber — Balata, many varnish resins

Chemicals that produce films

Ferric Citrate
Silicate Soda
Aqe or Apin a fat obtained in mexico by boiling a species of Coccus to battery Conote dries to elastic membrane like Collodion –
Gelatin
Albumen.
Tragacanth.
Mixture Molasses & Gelatin.
Action Chl Sulphur on Oils, Rubber.
Rubber in Benzol.
Gutta Percha in solvents.
Cellulose in Chl Zinc precip by Alcohol.
Balata in solvents.
Boiled Linseed oil.
Gelatin with sugar, molasses etc
Cellulose in Cupricammonium –
Cellulose acid and alkali & dis in CS_2 & then water Viscose
Acetocellulose

Chemicals giving tough mass.

Benzoic acid action Cl Tough gummy mass.
Dibromoacetate Lead " "
Ferricy K action H_2SO_4 certain stage Tough substance.
Platinocy K action HNO_3 no ¶ mean H_2SO_4 tenacious mass
Cumino-Eugenic Anhydride "
Furfurine Tough coherent mass.
Permolybdic Phos tenacious transpt.
Cinnamic A action Cl, tough gracey

Chemicals producing a Varnish —

Conine acetate Varnish.

Hyocholoïdic acid Resinous Na Salt in Alcohol perfectly transpt Varnish —

Sulphomolybdates. Mg Salt a Varnish, ditto Mn salt, later transparent.

Morphine acetate Varnish —

Potassic Vanadic Oxalate, amorph Varnish.

Peloxine " " transpt.

Diallylidene-diphenyl-diamine Varnish.

Phosphato-Vanadic acid "

Quinine Borate also Chlorate Varnish transpt

Quinotannic acid when mixed Gallotannic acid dries to transpt Varnish —

Rubian forms Varnish —

Shellac

Selenite of Cerium Varnish.

Vanadate Na amorph "

Shellac, Collodion, linseed oil, Elaïdin, varnish gums.

General list of amorph etc Chemicals from which preceding lists are taken.

Acetate Cadmium Gelatinous
Acetic anhydride acted on H_2SO_4 gummy
Aconitate Ag amorp
Aconitate Ca gum
Acrolein ammonia amorph.
Alcoholates. Compound with CaCl amorph
Allantoin Compound with Hg Oxide "
Allophanate Na Gelatinous
" Glycerylf "
Allylate K "
Allyl Sulfide from garlic Gelatinous
Amylamine Sulphate Gummy
Aloetic acid Amorph
Amarine Hydrochlorate transpt mass
" Nitrate amorph
" Acetate gummy
Trinitroamarine amorph
Amygdalic acid gummy
Amylate K Soapy
Amylmercaptide of Hg solid mass.
Anacardic acid some salts amorph.
Ananirtin waxy
Anchoic acid Porcelain like,
Anchusin amorph
Andaquies wax wax
Anemonic acid amorph
Angelica wax from Angelica Balsam.
Anise oil 298 Vol 1 Watts ~~from~~ gummy salt,

Anisic alcohol Cmotd by H_2SO_4 to resinous mass
Nitroanisidine Br comotd to "
Hydride Anisyl Pentachl P cmots to pitchy mass
Trichl antimony translucent fatty mass
Pentachl Sb absorbs NH_4 & Phos H. forms solid compounds
Apiin – gelatinous, vitreous after melting.
Arachis Hypogea Earthnut oil saponifies gives hard soap
Aricine neutral Sulfate gelatinous dried to horny mass
Arsenite Sb fuses to vitreous mass
Arsenate Al. Vitreous mass
Sulpharsenate Tin gummy
" ate – Ag ductile cake
Sulpharsenate Tin gummy
Ascetepione amorph
Asparatate of Mg gummy –
Athamantin heated KOH amorph sub –
Aurade Waxy mass
Azobenzoide White amorph
Azobenzidine amorph transpt
Azobenzoyl. "
Balsam Tolead, drawn out threads
Liquidamber – transpt
Beech bark amorph sub contained therein
Beachnut oil soap therefrom
Bebirine heated w Chromic A. Resin.
Benzilin melts solidifies amorph.
Benzoic Acetin Al. tough gummy mass.
Monobenzoicin Benzoate of Glycyl. at 40C transpt
drawn out in threads
Nitrobenzoylbenzoin MP 137 C solidifies amorph.
Benzoylazoticle Vitreous mass
Benzoylureid amorph
Berengelite, Berengela Resin amorph.
Betulin "
Borate lead monometa amorph glass.
" Dimeta "
" Sesquimeta "

Biborate Ethyl. transpt glass, soft and temp drawn into threads
Dibromoacetate Lead tough gummy mass.
Dibromohydrin action of NH_4 Amorph
Brucine, action Cl. Amorph flakes
Brunolic acid Pitchy
Bryoretin } Amorph see Bryonin
Hydrobryoretin }
Bucurumanga Resin Amorph
Caffelannate K "
Dechloro-camphor Wax
Camphor Resin } Amorph
Camphoramic acid } Transpt vitreous
Camphorimide Gummy transpt
Camphorin, Camphorate of Glyceryl. Viscid
Caproate Na Amorph
" K Jelly
Caramel }
Caramelane } Amorph.
Caramelene }
Carmelin
Carmufellic acid earth metal salts Gelatinous
Casein — cheese Amorp
Cellulose "
Ceropic acid Waxy mass
Cerosin " Sugar Cane
Cerotene action Cl. Resin trans
Chlorocerotic acid Gum.
Cetyl-Xanthic acid Zn Salt Glutinous.
Chelidonate Ca Amorph
Chelidonine acetate Gummy
Chenocholic acid Amorp
Chinoline action Cl Resin. oxd by Chlorate + HCl tough mass
Cholesterin action Lime Amorph fatty bodies

Cholochromic a. amorp
Choloïdic a salts Earth metals amorp
Chondrin gelatinous
Chrysammic a some salts amorph.
Chrysanisic a Co + Cu salts gelatinous
Cinchona Red amorp
Hyppurate Cinchoinine "
Cinchonine Chromate "
" Oxalurate trans mass
Cinnamein "
Cinnamene " glass
Metacinnamine highly refractive glass like substance
Cut cord temp with knife softens by heat drawn threads
Cinnamic a action Cl. tough greasy substance,
Cinnamate of Cinnyl Resinous
Nitrocinnamic Anhyd Kneadable Resin
Cinnamyl hydride action Br solid sub.
Citrate Al. gum.
" Ba mono salt. gummy mass.
" ferric salt. film
Lithia amorph limpid hard
Mg gummy
Ni film
Dipotassic amorph.
Citrate Glyceryl. yellow trans mass difficult pulverize
insol. Al Ether H_2O.
Citrate Glyceryl basic same as above melts 100 C.
Dicitromanitin Dry hard mass.
Coca wax from Cocoaine Mfg
Cocinic acid (Cocosteric a) from Cocoanut oil. porcelain
like mass.
Codeine action Cl. amorp Resin.
Colophene " "
Chlorocomenic a. neutral salts Mg Cu NH_4 amorp.

Conine oxd'd to Resinous mass also I + Br, gums
Conine Acetate Varnish —
Convolvulic a Basalt. Amorp diaphanous,
Ca Salt Amorph.
Convolvulin Trans Resin
Copaiba Resin. in Balsam there is one part amorp.
Copal resin Amorph
Corticin from bark of the Aspen Amorp
Creatine, action HNO_3 amorp
Sulphocresylic a. Pb salt, " "
Crocetin "
Crocoxanthin "
Croton oil saponified peculiar Resin
Crotonol distilled Resin.
Cubeb Camphor action HNO_3 Viscid
Cumo-sulphophenamide. Amorp
Cumino-Eugenic Anhyd Tenacious mass.
Cumylide K. Amorp Gelatinous
Curarine Horny mass.
Cyanide Cd + Cu Tenacious mass.
Cobalticyanide Ni Translucent vitreous mass conchoidal
Ammonio-Cobalticyanide Ni Amorph.
Cuprosocyanide Cu Amorp ?.
Ferrocyanide Tin + ditto Zinc Gelatinous,
Ferricyanide K action H_2SO_4 at certain stage tough sub.
Platinocyanide K action HNO_3 Jelly H_2SO_4 tenacious mass.
Cyclamin Gelatinous Amorph in H_2O Translucent, glutinous
Tricymylamine Chloroplatinate Viscous
Daphnin Pb salt Gelatinous
Delphinine Sulphate Trans mass KOH precips Gelatinous like Chumma.
Diffluan Vitreous trans
Digitasolin Amorph mass.

Doppleritc Pitch
Dragons Blood amorph acid resin
Nitrosulphuric acid Ba salt. Trans gum. ditto Ca salt.
Dyolysin amorp
Elemi Resin NH4 converts to gelatinous mass.
Erythransin amorp
Ethyl hydride "
Ethyl-selenhydrate. Hg salt. easily fused amorph.
Sulphethylate Cu gelatinous ditto Au salt.
Ethylamine hydrochlorate amorph
Bromide Vinyl-Bromo ethylene porcelain like
Ethylene oxysulphhydrate form cryst salts which at 100°C gelatinous.
Euchroate of Ag gelatinous
Eugenates Basic Pb salt. Tenacious Mg salt amorp
Eupione Caoutchouc dis in it leaves dry varnish
Euxanthate Ag gelatinous
Euxanthate of NH4 gives with cupric salts jelly
Bromeuxanthic acid amorp the salts gelatinous,
Chloreuxanthic acid salts "
Nitroeuxanthic acid salts mostly "
Fibrin "
Filicic acid amorph. Na salt amorp gummy
Filimelisi-sulphuric acid Ba salt. amorp.
Filipelosic acid "
Chlorofilipelosic acid "
Formate Tin Gelatinous
" Uranium Glutinous
Fraxin amorp
Fumarimide Trans resinous mass.
Furfurine tough coherent mass
" phosphate. gummy mass
Gallotannic a amorp after evap trans, vitreous fraible,
Br forms a resin HNO_3 amorp sub. —

Gallotannate Sb gelatinous
Fe salt. "
Garcinia Mangostana Resin Trans amorp
Gaultheriene HNO_3 forms resinous subs Cl Br
viscid subs
Gelatin acetum Cl, flakes filaments, elastic.
Geoceric acid waxy acid from liquites
Glass amorp
Apoglucic acid "
Quinovin-Sugar "
Glutin " Vegitable gelatin yellow limpid
liquid when hydrated. consistence varnish can be
drawn into threads having silky lustre
Glycerostannate Ca glass
Epichlorohydrin acetum NH_4 gummy mass
Glycocholic acid Ag salt gelatinous Na salt amorp
Nitrosacchrate of Pb gummy
Glycyrrhizin amorp
Glyoxal "
Guaiaretic acid Penlachl P. questenacious mass
Guanine amorp
Oxyguanine " gelatinous
Guanine amorp sulfate hard mass,
Haematoxylin "
Harmaline sulphite Resin
Dichloroharmine NH_4 throws down jelly
Benzo-helicin Gelatinous pulp.
Bromo-helicin amorp
Heveene from distillation rubber action Cl. a wax
Hexacroleic a amorp
Hexyl-chlorine makes viscid sub
Sulphohippuric a amorp
Cerotic a waxy
Melissic a "

Argyrescin gummy mass see under horsechestnut.
Humopic acid Amorp
Hydracrylic a Ag salt "
Hydrides of Alcoholic radicals higher series will
doubtless be found to be waxes
Ceroteine Waxy
Melissene "
Hydrocarolin after fusion amorph.
Hydrocinnamide " trans " gum
Quinhydrone in NH4 amorph mass
Ethyl-Carbohydroquinonic acid Pb salt amorp
Hyocholo'dic acid resinous Na salt in alcohol
perfectly trans varnish.
Imasatin Acetin KOH gelatinous
Inosic acid Ag salt gelatinous like Alumina.
Specuanic a. Amorp
Isethionic a K salt fibrous porcelain like.
Isodiglycol-Ethylenic a. Cu Salt Amorp
Isoprene fm rubber Ozone converts to amorp mass
Jalapic a salts are amorp ditto acid itself
Jalapin Amorp Resin
Jalapinolate Cu salt amorp - NH4 jelly Pb amorp
Lac amorph.
Acelolactate Ba gum pulverisable Cu salt amorp gummy
Sulpholactate Pb amorp
Methyl-lactate Ag " " gummy mass
Lauric acid wax Pb salt amorp Na Salt opaque jelly
Lecanoric acid Ca salt gelatinous
Diamylene-lepidine resembles paraffine.
Triphenyl leucaniline brittle non-basic resin
Leucate of NH4 amorp - Pb salt. Resin K salt soap
Isomaleic acid Pb salt amorp
Malate Al- trans gum — Ba amorp Cu gummy mass
Fe gummy Pb trans pitchy mass also amorp.

Maltha mineral tallow
Mandelic acid. melts to gum — with HCl becomes amorp
K salt. white soft easily friable soapy mass.
Ethylate of Sodium, action Sodium on Alcohol, trans
Mangostin amorp mass
Mannitic acid gummy mass Cu Salt amorph.
Margaric acid Ba salt amorph.
Marrubian amorp
Meconic a Ca salt gelatinous K neutral salt unsyst
Melanic a like lampblack.
Menthol action Sodium. Vitreous trans mass
Menyanthin amorp friable
Mercury phosphide may be cut with a knife
Chloride & Bromides Ag melted in atmos of Cl or Br give perfectly trans mass or glass, easily cut,
Methyl tellurid, nitrate trans amorp
Methyl-dithionic a Ni salt. amorp
Methylenitan "
Permolybdic phosphate tenacious trans mass
" Tartrate amorph —
Sulphomolybdates Ce salt gummy Pb. amorp
Mg Varnish Mn trans varnish
Morindin gelatinous
Morphine acetate Varnish, Cyanurate amorp
Hippurate amorp Mellitate amorp brittle.
Pyrotartrate fissured gum. Sulfate amorp.
Iodomorphine action Hg amorp Hydroiodate decomp by Ag ox amorp
Mycomelic a trans gelatinous
Myrtle wax
Myricin wax in beeswax insol al
Myristic a Pb salt amorp
" Anhydride "
Myroxocarpin trans glass Cl converts to resin

Elastic amorphous substances action
Chloride Sulphur on drying oils etc.
Tetrachloride of Dibromochloronaphthalene
if heated above MP remain soft trans, amorp
Bromotrichloronaphthalene B modification.
Wax like,
Hexachloronaphthalene wax like
Chloronaphthoic acid Pb salt gelatinous
Marignacs Trinitronaphthalic a adhesive resinous subs.
Napthionic A action HNO_3 containing Nitrous, a Resin
Napthalamine Cl forms resin
Menaphthylamine Sulphate amorp
Narcotine Sulphate Viscous, hardens gradually
Nitrialin amorp action Sulphide NH_4 on paranitraniline
Dinitrothylic acid see nitro Mg salt amorp.
Ceric oxide dis HNO_3 on evap viscid mass
Nitrate Zirconium basic salt Gelatinous
Nitrosacharose white trans friable resin in cold
but glutinous ropy at ord temp
Oil nutmegs deposits solid Camphor absorbs 11% Hcl
+ melts to transpt mass
Ocuba wax, used extensively in Brazil for candles.
Oleamide action alcohol NH_4 on oil Almonds
semi trans at 70. possibly good for phosphorus mixing
Oleate Mg Cr Al. + some other transpt amorp
Tribromo-dioleic a forms uncryst salts Ba Salt pitchy
Cod liver oil treated alcohol NH_4 forms large quantity
of amide MP 93 C Becomes solid + trans
perhaps other oils do same,
Oleate Mannitol Colorless waxy mass. soft + tenacious
at a gentle heat.
Olivil Resin trans
Onospin amorp
Opianic a NH_4 salt amorp
Sulphoopianic a - trans amorp

Opiamnione amorp
Otoba fat. Contains Otobite which when strongly heated solifies amorp
Oxalate Ammonia Amorp trans,
" Vanadium Blue gum translucent
Potassic Vanadic oxalate. amorp Varnish
Dimethoxalic a gummy mass
Diazobenzine=oxybenzamic acid action NH_4 + HCl. amorp soluble Zn Salt Amorp Cu salt ditto.
Dioxybenzamic a action Nitrous fumes Resinous mass
Oxynaphthylamine amorp powder
Oxyquinine Colorless trans mass when fused

10 Palmitic acid	90 Lauric		uncrystallized
50 "	50		"
35	65	Myristic	"
32.5	67.5	"	"
30	70	"	"
20	80	"	"

Palmitic a Pb salt amorp Ag salt highly amorp
Mannitic Palmitate solid white mass melts to wax
Palm Wax Hot Alcohol sep it into true wax + a resin
Parabenzine action H_2SO_4 forms an acid Ba salt gummy
Parellic Acid Gelatinous
Pasto-Resin viscid capable being extended in very tenacious threads which gradually harden when heated above 100 C becomes elastic like rubber
Pectin amorp Parapectin amorp
Pectic acid moist jelly dries to trans horny mass
pectates except alkaline insol H_2O Gelatinous
Pelosine amorp trans varnish
Peucedanin waxy mass from the Masterwort
Chromous Picrate amorp

Bromamidophenyl— several amorp. products
Aniline + Sulphide Carbon is converted in a few days into fatty substance.
Anilin Metaphosphate Amorp.
Cyanilide— under Azodichlorophenylamine. Resin resembles colophony perfectly
Diallylidene-diphenyl-diamine Varnish
Dibenzylidene—diphenyl-diamine Amorp. glassy
Melanilinic-hydrochlorate gum. actum Cl a resin
The Oxalate a resin
Phenyl-amyl actum Cl. Viscid mass
Under Phenyl-Benzoyl-Benzhydrolic-Succinate Trans Amy
Phloretic a actum Cl. sticky mass
Nitrophloretin Amorp.
Phlorizein Uncrystl'zd
Phlorizin Hel converts to Amorp—Cl to Resin
Phosphoramides— Amorp.
Hypophosphite Alumina thick gum when evap Vacuo dries to shiny gummy brittle mass ditto glucina salt,
Orthophosphate Al acid salt gummy fuses to glass
Metaphosphate Lead fuses to glass
Hexametaphosphate Lead precip which becomes resinous
" Magnesium precip soft + tenacious
ammonium mag phosphate dries to brittle trans mass
Metaphosphate Ag melts to glass insol H_2O
Hexametaphos Ag soft at 102. C + at higher temp melts to glass insol H_2O.
Tetrametaphosphate Na precip gummy even when diluted 100 times when precip by alcohol mass is ropy like rubber dries to trans fissured mass not hygroscopic
Phosphate Tantalic a fuses to colorless glass

Phosphate Titanium gummy
Phosphate Vanadic a. Varnish
Orthophosphates Di Zincic salt melts trans glass uns of H_2O
Phosphate Zirconium gummy transtucent mass when
dry uns of H_2O
Ethylphosphoric acid Uranic salt. amorp brittle
Physalin amorp
Picoline action Cl dazzling amorp powder
Propionate Na amorp
Prussian Blue "
Pteritannic acid "
Pyrocamphretic acid Ba + Pb amorp
Camphretic acid salts uncryst
Pyromeconate Mg amorp Ag salt gelatinous
Pyrophosphamates of NH_4 + K gummy
Pyrophosphotriamic acid amorp
Pyroracemic acid B kind amorp + gummy salts
Pyrotartaric acid Mg salt gummy very fraible mass
Pyrotartrimide dis OxPb dries to gummy mass
solution attacks filter paper renders it gelatinous + viscous
Quassin trans yellow brittle mass
Quercetamide amorp
Quercetin alcoholic sol mixed with ferric Cl. amorp mass
Quercite-Nitro amorp Resin
Quercitrin after fusion amorp --
Quinic acid "
Quinates Yttrium salt gummy ferric ditto
Quinine trihydrate resinous acetate fuses to colorless
glass Borate a varnish, Chlorates, Trans varnish
Croconates or Rhodozonate amorp Cyanurates amorp
Hydroiodate Resin, Nitrate waxy Tannate "
Valerate solidifies from solution as a glass
Hydroquinine amorp resin
Ethylquinine "
Quinine-sulphuric a solid amorp

Quinone precip with basic acetate Pb gelatinous
Quinonic acid, uncrystlbl salts.
Quinotannic acid when mixed with Gallotannic A dries to trans Varnish
Quinovin amorp resembles Gum —
Racemate of Ni gelatinous, Mg amorp when combined with alkali metal — a double salt,
Ethyl-Racemocarbonate one kind amorp trans mass
Rhamnocatharin amorp brittle
Rhamnotannic acid "
Ricinelaidic acid Ba salt unctious talky
Ricinelaidin solid fatty body action Nitrogen Per ox on Castor Oil —
Ricinoleic Acid fatty acid —— Cu salt fuses to a solid very friable Pb salt fuses to solid easily pulverized
Rosolic acid Pitch amorph.
Rubiacic acid amorp
Rubian — hard perfectly amorp resembling dried Varnish or gum arabic
Rubichloric acid Pb salt trans mass
Rufimonic acid amorp.
Rutin fuses to amorp mass
Saccharic acid Brittle. Ferrous salt gummy
Salep 1 part S converts 48 pts boiling H_2O into thick gum which becomes compact & solid on addition of Magnesia or Borax
Chlorosalicin Resinous
Salicylide fuses trans mass
Salicylic anhy hard mass
Bromosulphosalicylol Resin
Monochlorosaligenin "
Saliretin " acids sep & fm H_2O as gelatinous pulp

Salvia sage oil Nitric a converts to Resin
Sambuens soft gelatinous resin substitute Bird Lime
Santonin by prolonged fusion amorph.
Trichlorosantonin alkalis convert to Resin.
Saponin neutral Pb acetate gives gelatinous precip
Sassafrass oil H_2SO_4 forms resin
Ipomaeic acid under Sebacic A precip formed by
Ipomaeate of NH_4 + $CaCl_2$ amorph.
Seleniocyanate Hg amorp gummy mass
Selenium Tetrachloride one reaction gives sub like Wax
Stearate Ni — Mn + Lithia transparent + amorphous.
Selenite of Al. trans gummy Cerium salt. Varnish
Aq opaque Zinc acid salt. trans gummy fissured mass.
Myristin silky aspect fm Beeswax
Shellac Varnish
Silicate Na K tough skins
Silicofluorides. Hg salt trans gummy mass
Silver Sulphide amorp wax cut with Knife
ditto Chloride
Artificial Aq Sulphide after fusion soft enough cut Knife
Sinaemine? resin
Sinapic acid. easily forms sol salts in alkalis
Sulphocyanate Sinapine melts gummy
Solanicine amorp
Solanidine Sulfate "
Solanine sol in acids septd by alkalis gelatinous
precip melts + solidfs to amorp with Nitric Resinous
salts of Solanine dis in Alcohol. gelatinous Mass
Gallate " amorp
Solanine heated sealed tubs with ethylic Iodide salts gummy
Oxalate amorp
Suberate Al. amorp powder
Succinate Pb basic salt sticky glutinous brittle on cooling

Greenscum from Sugar Cane has wax called Cerosic
Sulpho-Benzamic a amorph
Sulpho-Camphoric a Pb salt, Amorp Ba gummy
Xanthate Ca gummy
Sulpho Cinnamic acid Ag salt Amorph
Sulphoglutinic acid action Sulanhyd. on excess Naphthalene glutinous.
Sulpho Melanurenic acid Sr salt large plates waxy lustre
Sulpho Naphthalene MP 70 solidfies Trans, Elec friction
Methyl-sulphurous basic Pb salt white amorph
Tetrachloronaphthylsulphurous acid.
K salt gelatinous,
Ethylene Sulphurous acid Pb salt tough gummy
Naphthylene Sulphite Ba Salt Amorp
Phenylene-Sulphurous acid Ba salt amorp
Sulphate acetic oxide gummy mass
Sulphate Alumina tetra-basic-salt. trans vitreous fracture trans jelly when wet
Manganic Sulphate perfectly amorp powder
Sulphate Tellurium to trans vitreous mass
Vanadous Sulfate basic salt dries to blue trans mass
Amyl Sulphates generally uncrystble + soapy to touch
Amyl Sulfate NH_4 gelatinous Ca soft to touch
Hg cryst nodules soapy + glutinous
Ethyl-sulphuric acid Al salt gummy
Sycocerylic Alcohol after being strongly heated solidifies to a transparent glass.
Sycoretin amorp
Sylvic acid Melts glassy mass Pb Salt amorp easily fusible Mg salt trans resin.
Sylvinolic a amorp
Common Lilac leaves have a wax extracted by Ether
Tannaspidic acid amorp

Rufitannic acid amorph
Tartrate Pb gelatinous Mass Na salt gummy
Al- gummy non deliquescent acid tartrate K
dissolves alumina forms amorp mass Boro potassic
tartrate white amorph mas
Melatartaric acid trans gummy mass
Glyco-tartaric acid black amorp mass
Diacetotartaric acid trans gummy mass
Aceto tartaric Ether action Sodium give trans gummy sub
Amyl tartaric a trans amorp Mass
Tellurous Acid Cd salt gelatinous dries brittle mass
Pb salt melts translucent mass K salt soft
gummy Coagulum —
Terebanic acid Ba Salt a gum —
Terebenetillic acid Pb salt resembles gum Arabic
Chl Thallium cryst flexible mass
Theobromine dis barytic water to white jelly
Thianisoic solidifies amorp state Basic Pb salt amorp
Thymol. absorbs NH_4 hard brittle mass at 100 C. can
be drawn into threads
Thymotic acid white loosely coherent mass silky
lustre MP 120 expands + solifies
Stannic a gelatinous dries hard translucent lumps like
gum Arabic NH_4 salt gelatinous
Metastannate K gelatinous
Tungstate Al acid salt cindy resinous lumps when dry
Metatungstic a Colloidal — glutinous, sticky gummy
some metatungstates are amorp + gummy Al salt
amorp Ferric " Ag salt waxy crusts
Tungstic Sulphide combines with Ba Ca Sr + Mg sulfides
to form amorp masses,
Nitrotyrosine — Ba salt amorph
Urate NH_4 acid salt "
Valerate K "
Veratrol K salt gelatinous Al acts to make unctious

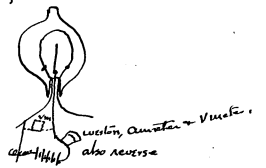
Viscin glutinous from Mistletoe pure viscin is waxy
may be drawn out in threads
Age or Apin a fat obtained Mexico boiling species
Coccus butterey consistency dries to adhesive membrane
like Collodion.
Muconic acid most of salts amorp.
Sulphomolybdates amorp gummy

Feby 8 1903–

It is probable that if gelatin film flowed over polished nickel plate or Pt and then when nearly dry another plate laid over it & connected to battery that one surface would be oxdzd so it would be insoluable water & thus keep its transparency possibly gelatin films when practically dry could be oxidized & rendered insol in H_2O by H_2O_2ox, $PerO_2$ Na. Peroxchl. $PerOxNit$ Hypochlorite Mg of Na, etc. The idea is to make insol gelatin plates for photo etc, possibly oxdtn assisted by light from arc,

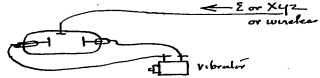
If a vacuum bulb input across 100 volt ckt and also several microfarad capacity of condenser it seem to me that it will discharge into vacuum tube & give alternating current therein (10) convert continuous into alternating

With center wire in incandescent lamp try connecting the wire circuit (10) wire in center + P pole with battery and resistance to oppose & add to the extra current & notice phenomena

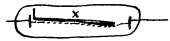


If Ni + Fe pocket be put into sealed glass tube with platinia conducting wire + small quantity NH_4 in H_2O be put in + tube heated till whole evaporated shewed be able charge + disch battery.

Of the many viscous transparent substances should be able to get a material that Daly can blow a small globe + put a filament in also Vacuum tube other than glass.

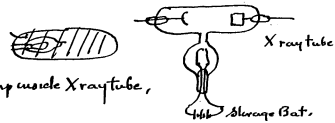


Exhausted to very best vac where light is very easily deflected by Mag — The stress coming in over wire moves the stream sidewise.

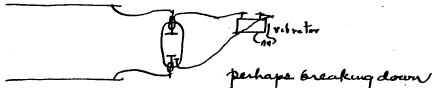


Vac tube chalked glass X

the line of charge illuminates chalk, put magnet top so line of illumination moved perhaps used as telegh receiver cables.



See effect lamp inside Xraytube,



the resistance of a vac tube at most sensitive point by a small spark coil then stopping that 100 V current will keep it up - or with aid of several microfd condens

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It will depend somewhat on the nature of the residual gas. Hittdorf in one expt got with 100 Volts in tube where 1200 V wouldn't start tube, started it with Leyden jar, there must be a dissassociation of molecules before conduction; Hows H_2O Vapor — One electrode should be so the residual should be able to chemically combine + the disaccociate. Perhaps MnO_2 PbO_2, N_2O_3 — possibly Oxygen residual or H_2O + Electrodes that would form a storage battery.

In wireless telegphy think that if atteneau point is heated white hot it would connect with the medium better just as the p pole in Vac tube shows great fall potential or Res. + scarcely any if white hot, a Nernst Lamp at end wires might answer, or arc or platina wire — or X ray focused on it or Radium

On Molograph using Carb Strontia make lots of cylinders + test with various solutions instead of KOH. Try NaOH LiOH. BaOH, Sr OH, CaOH, NH_4 — Chlorides Lithia + Ca Soap Solutions Meconate K uncrystalizable Silicate Na. Precip ferrocn in pores Quinonic acid uncrystalizable salts. Chloride Zinc, ChMg — Key KI. BrK — ChCupric, Hgcl. KOH saturated Zn OH, ditto CdOH, KManganate KPlumbate KPermanganate, K or Na Tungstate KPhos, ~~KCrom~~ look up very deliquescent salts with Alkaline bases, see p 123

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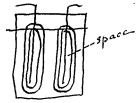
Concentration Storage batty KOH say 30% sol finely divided Magnesia ignited or ~~infusorial earth~~ zno + graphite both poles 3+5 in grids — charge + get current due to Cnctn Cell might be made with nickel sheets faced with a porous non conductor

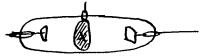


possibly a 28 plate cell in which is crowded 300 plates with porous material packed in by pressure & cubole wet with KOH. provision possibly for gassing – Carb Strontia, used for porous material, possibly plaster Paris could be used, possibly Orch Zn or Mg – or Portland Cement, phos Zinc,
2000 plates 10/1000 thick with 10/1000 porous material weight plates 280 Lb put in 5 cells in series gives one volt, 200 watts,

Both Cd & Mg (OH) form higher oxides with Peroxide H, Try both 5 & 5 grs to in KOH, see if its possible raise to higher oxide

Peroxide of Copper is obtained by Heating Cupric hydrate in KOH — Try Lelande,

If we are to consider a solvent like water a Vacuum Electrolytically and as X ray is only produced at a certain stage of exhaustion in Vac tubes & ceases beyond That point & below it Then with a celluloid Cell & platina Electrodes & very few ions should get X in some form or X42 from one of the Electrodes



X is mica as the thinnist kind of matter throws a shadow when X ray stage is reached.
vide Crooks Will Pt get hot or give X ray if it does the bombardment is a secondary action – if it doesnt the the Ray must be produced by bombardment & production of a temperature beyond anything that Can be produced in arc, or if not it must be the joint action of the atom & the inertia of the Pt atom disturbing the medium

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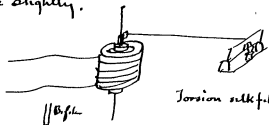
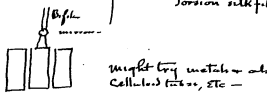
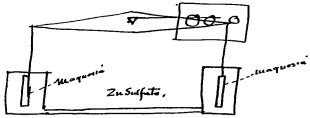
The Positive pole current seems under all conditions to carry matter forward with the Current.
Therefore if it acts at any distance, the Cylinder should rotate slightly.

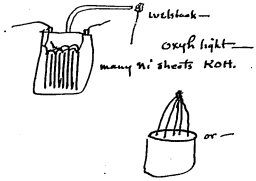




Condenser

X hard pressed Carbonate Strontia wet KOH. Ni sheet, test points on Metogh rose if Ni OK if not can plate a metal that is —





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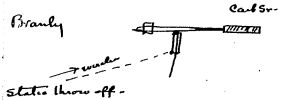
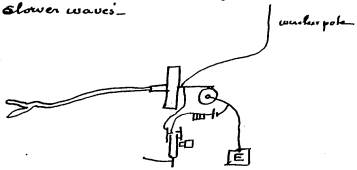


Why with chemical recording pens is marks on Oxygen side always tailed off + on Hydrogen side sharp, run it down might get lot Phenomena out of it.

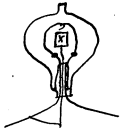
Is it true that if combustions take place at very low temp you produce Elec, just as if low temp produced slower waves -



Use motograph high pitch fork make 4000 waves second, if on Cable. Everything that Comes will be broken up into sound + the dots + dashes will give variations detectable where Syphon Recds might not show a break in say ----

Try 212 °fah Fusible metal in Phono Record mould. possibly Cements put in mould might contract enough to come out say Plaster P. Phos Zinc Oxychloride Zn Mg Gelatin. with backing of Sugar Very hard Coal tar pitch.

Possibly some of the many Camphors less volatile than Reg Camphor might answer for Phono Recording



Possibly with very high Vac get X ray from X - there is bombardment Could watch for it as Exhaustion went on.

Ouillotogh use salts etc KOH etc with different liquids, glycerine amyl + other alcohols, Pyridin, etc, Hydrocarbons with Ozone in —

Possibly as substitute for $Ni(OH)_2$ in battery compound hydroxides might be used, say Cr Fe Mn Fe Wo Fe Fe Bi Mo Fe Cr Mn Cr Wo Cr Mo Cr B. Co Fe. Ni Wo Ni Fe Ni Mn Ni Mo Ni Bi Ni Mn Cr Ni
Fe Ce Co Ce Bi Ce Mn Ce Wo Ce Mo Ce Ni Ce all hydroxides lowest members and precip together in various proportions.

Celluloid Cell – two Electrodes fluorescent liquid in water with say Uranine in very little, very dark room eyes sensitive use strong current possibly phosphor; try various liquids — Electrolytic + mentator, possibly in depositing Zinc the anode might faintly phosphoresce, also depositing Z on Magnesium plate, Or two mg electrodes in KOH might phosphoresce when ion strikes the oxide skin on Mag possibly liquid if warmed would better, also try cold —

If one smells chlorine for a few minutes, then for hours afterwards cigars smoke smells as if the tobacco was scented with Cascarilla bark —

Try further experts on oxdzg flesh by HNO_3 + dissolving product of oxdtn by Iso-butylamine — see rapidly. Would be fine for bloodless surgical operations

Why do the dried compound of Molybdate of Tri jump several feet when placed in the hand,

Chloral Hydrate is a good solvent, its peculiar, = it dissolves cork – possibly might be used in Electrolytic Experts also Phono work for dissolving amorph materials —

I noticed somewhere some phosphoric acid forms a phosphide with Copper pole electrolytically. This or phosphorous acid might with proper metals form a storage cell—

It would be interesting to determine the velocities of Chemical reaction. by revolving a cylinder at great Velocity + then drop a chemtelgh pen down having a pointer on your to give speed— Before for the pen perhaps chem paper strip or better. or a gravity drop the inch of paper being moved up or down the heighth of the fall—

Depolarizers Battery

Peroxide of Acetyl— when dry powerful explosive, ditto oxidizer possibly good depolarizer easily made by dissolving Acetic Anhydride in pure ether, + adding equivilent quantity Ba Peroxide. See "Oxygen" Watts Vol 1 35—

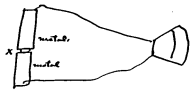
Peroxide Benzoyl of
The anhydrides of Dibasic acids heated with BaO_2 form easily decomposable peroxides for instance Succinic anhydride See "Oxygen" 319 Watts

Oxynaphalamine easily made by dissolving Hydrochlorate of Naphthalamine in Alcohol solution diluted but not enough to produce turbidity while whole is stirred aqueous Ferric Chloride drop by drop added until slight excess whole allowed stand one hour repeatedly stirring precip then collected + washed until Nt aq gives no precip then washed Alcohol + dried in Vacuo Amorphous + light purple, when moist smells of or like Iodine Does not combine with acids or Alkalis Sol of KOH. might do in defaulde possibly sub for Nickel in Ni Fe Storage

Oxysulphides
Oxychlorides } Depolarizers

Feby 8 1903

Magnesium acted on by Hydrogen Peroxide forms a strong alkaline solution. ?



X between, all heated, phos + X ray crysts between heat stresses crystal to a certain point then discharges + restressed give continuous Leyden jar idea — pyroelectric Crysts.

Oxalate of Iron Electric by friction —

Di-strontium ortho Phosphate by precipt Sr salt by Di Sodium phos + heating precipt to incipient fusion. is Phosphorescent,

Try subliming chemicals in partial Vac Tubes in strong field magnet ditto static field, X ray —
Some sublimes Bichloride Arsenic + arsenious oxides
Carbon Hexachloride Camphor, Iodine Am Chloride
Anthracene + many organic,

Gallotannic Acid Yellow when exposd Light
" Amorphous.

Crystals of Tartaric Acid become luminous when rubbed in the dark ——

Aluminum Potassium Tartrate Amorph, dissolves Considerable excess of Alumina

Hydrated Silica from NaSi by HCl dries in Vac H_2SO_4 drans glass with 23% H_2O —

Feby 8 1907

Material useful for experimenting which can be turned or bored.

Slate Steatite Meerschaum. Cryolite
Marble Gypsum Mica Hard Rubber
Celluloid Vulcanized Fibre Horn Button stock
Glue with powders. Bone, Ivory, Wood.
Lava, Pumice Gutta Percha, Plaster Paris
Coral, Magnesium limestone Oxychloride Magnesia
Oxychl Zinc Phos Zinc Fused Chloride Silver
Sulphide Silver, Oxychl Pb, Horn Lead.
Sulphur, Acid Soaps, Shellac with powders,
Albumen with powders. Hydraulic Pressed Carb Strontia
with Cinders, Vulcanite

Feby 8 1903

Flexible sheets, films —

Mica Gutta Percha Balata, Iceland moss dissolved, Hard Rubber soft rubber, rubber in Benzol. Celluloid Glue, Gelatin, Gelatin with sugar, Gums with gelatin, Collodion Vulcanized fibre, parchment animal, parchment paper, paper dissolved in Cupric Ammonium, Cotton dis in ZnCl precip by Alcohol Tragacanth films, Silicate soda, Oiled Silk — Linseed attacked by SCl. Carbonized paper, Reduced Collodion Carbonized, Leather fish glue films Oleate Lead, Sulphurized Asphalt, Birch bark — Lace wood, Certain Sea weeds. Tracing cloth, Iceland moss jelly dried, Sulphide Molybdenum — Rind of Cactus. Pears soap in alcohol dip — Cold glass gives thin film flexible.

Viscose — Acetocellulose, Casein

Reducing Agents

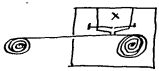
Sugar. Hydroquinone. Ferrous Sulphate Ekonigen,
Pyrogallic acid, Sodium Sodium amalgam,
Zinc dust, Zinc, Al Mg— Hydrazine, Formaldehyde
Hydroxylamine, Phosphorous, PhosHydrogen,
Hydrogen. Iron+HCl. Stannous Chloride.
Aldehydes, Albumen, Gelatin Ammonium Sulphide.
Glucose, Hypophosphorous acid, Sulphites, Hyposulfites

Oxidging agents.
Hypochlorite Na etc, Permanganate K Ferridcyanide K.
Peroxide K. Peroxide hydrogen Ozone, Nitrogen Peroxide,
Nitric acid, Chromic acid Ferric Chloride, Peroxide Silver
Oxide Silver Peroxide Lead, Persulphuric acid, Perox Manganese
Peroxide Cobalt, Bromine + Chlorine in water, Na Peroxide,
~~Ozone~~

Will a jump spark passed continuously thro a gas flame raise the luminosity ditto with Welsbach on.

Decompose acetate or formate Nickel in vacuo by heat absorb the acid by a solid reagent leaving Metallic Nickel possibly in a condition that it will be active in Battery. Hypophosphite Ni goes to metal at 100.C.

New Recorder idea

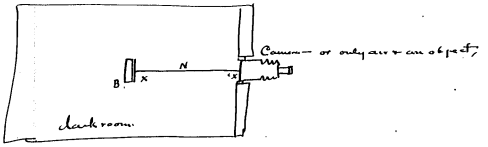


Band of paper coated Balmains phosphorescing material Box X containing sparking point Source of current say Vacc tube etc or any source light, Ethric, Hertz small opening below points, paper closes hole flatten say 1/16 of dots + dashes of light are made recorded by phosphorescin will last long enough to read — all to be in dark room — could record in this manner any instrument throwing beam light by mirror, of phos is rapid enough Could have Constant arc light + a magnet or Motogh Controll shutter + get record at great speed afterwards read or photo

Possibly the proximity of different materials to sparking points will give off an invisible ray that Could not be photographed that will Control spark like Ultra Violet light, also electrified body which is discharged by X ray + Radium — might be discharged by rays from diff chems The shades could be used but probably better use materials from the Gothics. Off boys could make the test, Controlling by arc + Ultra Violet.

Feby 13 1903

In some of the tests with the slides it may be necessary to remove the mica as it may entirely absorb some ray I am looking for Otto boys could do it,



B a photo slide with Dry plate X a polished Silver plate. N Copper rod 1/4 X polished silver plate, Use X ray arc etc, Idea being light may cause transmission of a ray thro the plate, Condensing in wire & expanding on X & be photo'd, give say 10 hours time,

On principle of Nernst lamp it may be a good thermo could be got from a conducting Sulphide in an atmosphere of sulphur under pressure & permitting a high temperature to be attained without final decomposition of the sulphide a limiting point being reached, This might hold good for Oxides in Oxygen etc & will be true of any hot conducting body and as many bodies become conducting on fusion & those which are prone to decomposition & in fact must decompose will recombine & thus chemical action Energy or E will be cancelled out & will get a true thermo Current without deterioration with proper Chemicals & Electrodes there is a wide field for experiment.

Feby 13 1903

With an X ray tube after use for a few moments + then disconnected quiz off a ray to a photo plate, Could arrange it with heavy lead shutter so tube be excited while plate screened + then Exposed when not excited, by rotating the shutter Could keep it up for some time,

Have Old boys break off pieces of the Granite Gneiss etc samples + powder + make up a slide or so also collect from gravel bank off phono works every kind of pebble + make slide also sand, also all the rare Alkaloids in that sample case,

Possibly plain glass, Celluloid, Mica, polished hard rubber, plates would act in place of a photo dry plate, The light Electrifying or changing surface so if put in Vacuo or Even in air troublined Chemicals allowed to come in contact with it they would adhere only where the light struck or the Contrary Possibly some liquids or the Vapors there of Condense Possibly polished plates with dif metal surfaces might be sensitive to Vapors Cl I Hg. S. Te S NH4 possibly plates coated with different Compounds might be physically altered so to attract particle like ClNH4 smoke etc,
Metallic plates might be enclosed in a tight box about size of slide used for dry plate + closed + Containing gases like Cl, CO_2 etc + in Conjunction with light give an image possibly developers might be necessary Quartz lenses may be necessary or no lenses at all - using an object to Cast a shadow Even polished plates Could be laid on slides with + without mica Covers over Chems -

Feby 13 1903

Possibly in dark room a polished plate could be made one pole of a silent discharge + picture thro Quartz lenses thrown on P. thro would silent silent dis at places where Ultra struck a Etch or alter the surface. Coil could be so weakened that no discharge takes place until Violet light comes.

Will X ray effect a very sensitive Hy thermometer or an air thermo filled with Chlorine + water index Cl absorbing X ray should Expand

Hydroxylamine seems to be the most powerful reducer possibly dry plates of different materials which not developable by ordinary developers might develope with Hydroxylamine Especially if warm —

Possibly all metals are compounds with other Elements or with themselves, except Fe Ni Co, and are connected to the Ether whereas Fe Ni Co are free or Centra, Is it true that all metals in high Vacuo will give various colored films by transmitted light whereas Fe is black + possibly Co Ni — try Gold, Better look films of all metals if the magnetic metals prove to be the only ones that are black it would be a great scientific fact,

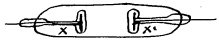
Try depositing films in Vacuo in magnetic field, X ray static, Cold Oil, + heated bulb,

If Iron Dynamo with Fe field + Fe armature gives E what would a Bismuth Dynamo give — XYZ?

If a wire is wound on a Bismuth ring will the Kick be with opposite direction to that given by iron — if strong etc might be good for Lighting Cables telefony Etc,

Think an Electrolytic Condenser could be made that would Cancel out one alternation & give a ragged straight Current, Al foil & paper moistened with acid — or KOH, also other metals & solutions, possibly Linseed oil, rosin, which are acids

Probably if one Current from an Induction coil is cancelled out or a 2000 Volt battery used & Connected to Vac tube — that it will be found that one Current tears off all metals & deposits them as films & that the same Current will not tear off Neg ion Non metals like Te S. Se Ar I Etc but that the other Current will do so & deposit films — possibly alloys of Non metals with Al will answer as Al does not deposit,

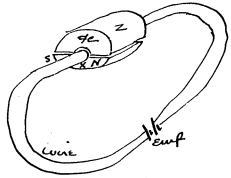


X Electrods with metal disk Coated entirely with say shellac Rosin, Gutta Percha made long glass inside so heat of sealing in will not affect shellac See phenom — Then make disks of Cu Coated with CuO, & dif metals Coated & not Coated —

Feby 13 1903

Substitute non metallic Elements for non corrosive get Kick also form ring 1/2 of metallic other 1/2 non metallic element, for instance, Te Cu Se Ag Ar Cu Etc get Kick — see phenom

A Carbon dissolves in yellow hot iron — as Zinc also amalgamates both in Hydrogen, make several Couples [C|Fe] [C|Fe] in H see if get Current due to Cementation, also [C|Fe]



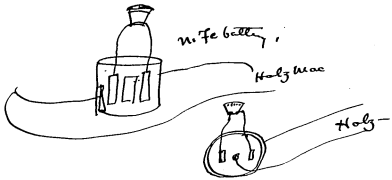
If X in position shown gives N.S. take it away leave Z what polarity will it have
Does the ethric pressure lines converge to the Center of every circuit + not outwardly

A good commercial generator of Oxyhydrogen gas could be made by using say 50 slightly Corrugated 10/1000 Ni plated steel plates, Hydrogen welded & packed with separators in Auto cell, with 20% KOH & a large Dary — a tube leading to a Wellsback or Zirconia cylinder — Could be worked by a storage Batty.

Possibly two glass plates warm with warm Conc sol of chemical on one + the two pressed together + cooked will crystalize, try crystalizing while electrically chg'd — X ray — Mag field — Violet also 1/2 of film on one side of one chem other 1/2 another which by diffusion act to form crystals, put under same conditions + watch for phenom —

Possibly a glass plate coated thinly with AgCl or better first in atmosphere of Chlorine will give transparent film AgCl. over this flow gelatin very thin, then use as dry plate should get sharp image —

Will phosphorescence last longer in Vacuo than air — Use 2 bulbs one a Vac



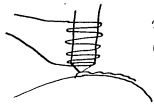
See if Electrification attract ions to one side or alter Electro Emf or C.

Better put say 50 slides on table at once with arc bore hole in Carbons + put different chems in to get strong mono etc, + so on thro all for each particular powder in arc, also opaque + use slides as fluorescency, also Dry plate,

Feby 13 1903 —

Try Experts on 6th sense 2 persons in series with battery, coil-etc, static, + magnetic,

Possibly a Capillary tube with thick Rhusto film dope connected to diaphm could be vibrated to deposit film on a cylinder + record
Possibly a partially dried film on a cylinder recorded could be made by displacement.
Possibly film dope could take up a lot of Oleate or Oleonate aluminum do Mg Chloral Hydrate Camphor Soaps Waxes etc + a good recording material obtained,



Possibly wax in tube kept hot by platinum wire could deposit + chill on a record cylinder.

Use different metals in different solutions as Electrodes and with thin Quartz window + shutter revolving fast enough to give musical note, let beam of light pass into cell + impinge on cell, to set up a current using telephone for receiver, could use plates coated with Sensitive materials, affected by light, also pass current through cell + have light affect surface + Rec,

Possibly Mn_2O_3 anhy or Co_2O_3 anhy w Pot do for telephone powder,

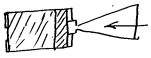
Distilling in high Vacuo of chemicals + metals, Cd Zn Sb Ar Mg Mg Se Te. easily distilled. Bi Pb Sn with difficulty - Metaphosphoric acid better than Phosphoric better sublimes at 50.C.

to get things pure should be more than one distillation, account of vac distilling in m Ann Phy Chem. [2] 18, 317 325 – Schuller, uses mechanical pumps

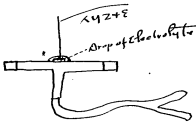
Aluminum Palmitate basic, has peculiar properties its used to thicken easily fusible lubricating oils, also thickens Ethereal oils

PbO_2 prepared by mixing Cone Solution of Pb(Acetate) at 60 @ 70 cent with Solution Ordinary Hypo is perfectly black thus should be good for Lehmann

April 4 1903. entered from small book



Try the gelatin KOH phenolphtalein test for sound waves see if there isn't an advance of KOH into other jelly by sound waves alone.



Will the spectra be different if Ultra Violet light from arc lamp shines on a sparking point, try on & off.

April 4 1903

Things to try for hard phono record that can be melted + worked by dipping process, Bases to manipulate,
Hard Asphalt something to lower MP shellac etc.
Very Hard Scotch Blast furnace Pitch possibly more lamp black
Shellac
A Rosin soap of non alkaline metal, that can be melted
Caramel + higher
Residue from distilling Sterine Pitch,

How would wet clay cylinders recorded moist also Colloids answer — Try Carb Stronti, also colloids nearly Dry — Silica — Ferric hydrox Trihydrate Alumina. could plaster over a surface 1/16 thick with Colloid —

It is possible a very good concentration cell could be made by Alkaline Electrolyte + Cu_2O both sides.

Possibly photographs could be taken by red + yellow light of light passed through a vacuum or a magnetic field or strong dielectric field or the plate under these conditions of light might pass thro a coil of wire with great amperage momentarily from short circ storage cells — or at right angles to X ray or thro a space strong of radiant heat. in line + at right angles also plate heated up to 212 — + combinations of above —

Will X ray affect a thermo coil or when heated one end or affect the current from a couple by absorption of the ray at heated or cold juncture.

Try best thermo in very high Vacuo.

Can it be that the mass of a Zinc Electrode will affect Voltage or amperage —

~~[illegible]~~ April 4 1903

Every magnetic circuit & coil has its natural charge & discharge time. If there were several such rings with their coils around them all in the line & on each ring a larger coil with Resonator or fork in tune with the Extra Coil & fork magnet it would be a good acoustic relay — possibly each coil could be a primary & short around it to fork magnet & Each coil have a different disch'g time.

Will X ray passing thro a sheet of iron within a coil give a Kick on galv if worked by a lead or Pt shutter, or be heard in a telephone.

Is Rocksalt plate affected in its heat, Ultra Violet, Ele by Electric Stress, Magnetism, X Ray or monochromatic Light.

If Radium is the fluorescer of an unknown ray which prevades the universe would it lose its fluorescence if placed in a box of Lead say one foot thick —

Since a Nernst solid oxide becomes a conductor at red heat without melting why may not a battery be made with solid Electrolytes & other applications.

Conveyors — Think it would be great improvement in conveyor belts if steel wires put between plys to prevent stretching. The belt would not need be so thick, — about 1/16 apart 1/20.

Can attraction be detected between an acid forming metal or an anhydride and a basic metal.

With a Quartz prism & arc light might try all oxides, in Ultra Red & see if any fluoresci also Iodine in Bisulfide Carbon.

~~[illegible]~~ 03 April 4 1903

It is possible that paper treated with ammonical Copper solution or ZnCl would remain unaffected in KOH of battery.
Cellulose dissolved in $Cu(NH_4)$ solution solidifies to semi trans Brittle glass This bulkhouse may be just the thing possibly other ingredients (?) MgO etc could be incorporated & be solid — KOH

There is certainly merit in the Ceric oxides as depolarizer if they can be got active in alkaline Storage battery.
They do not give enough — April 1, 1912 have got them active

Amorphous precipitates generally cause absorption of heat but those which after being precipitated amorph turn Crystalline give off heat, one about equals the other Perhaps X ray tends to make Crystalline salts amorphous as they change from one to the other very easily so a very little agitation or vibration would likely bring about the result; Sr Carb is precipitated amorph absorbing 400 Cal then it changes to Crystalline giving off 400 Cal. Could it be that this has anything to do with the metagraph action The two best are $CaCO_3$ + $SrCO_3$ both change to Crystalline after precipitn May be current vibrates the $SrCO_3$ from Amorph to Crystalline. & to this that changes the friction, there are numerous salts that have this property.
S etc Citrate of Sr HgI Ca Citrate, Cd Citrate
Dichloroaldehyde Watts 1st Sup 76 —

Neutral Quinine has the power of causing subsidence of finely divided particles in water such as India ink, Charcoal. Cinnabar, fuller earth, ground part of plants, these floating in the water move about & do not subside — by adding neutral solution Quinine Even in small quantity they subside — Alum does the same thing but more powerfully — wonder if Quinine or Alum subside the $Ni(OH)_2$ at Betty works.

Lead Citrate precipitated from Na salts by excess Pb Nitrate melts in boiling liquid to a kneadable substance,

Rosin soaps sol alcohol + amorph — also Rosin soap of Mg Al etc sol in alcohol — must be neutral, it probably some good results for matter records could be obtained from them —

Rosin in warm alcohol treated with Na amalgam forms a white hydroabietic acid which melts at 160.C & and forms salts —

Why cant a storage battery be made with PbO dissolved in KOH + then nickel plated steel plates used to deposit lead on one side Perox on other only depositing 1 to 2/1000 of inch on each surface + get capacity by using an enormous number of plates in cell — perhaps PbO_2 well dissolve in the KOH,

Perhaps hot solution of saturated salts allowed to cool + crystallize — in powerful X ray field might afterwards fluoresce — ditto Ether stress, Mag field, Ultra Violet lt,

When boiling solution of Nitrates of Na + K are mixed with ferrocyanide K + the mother liquid after the greatest part of the Nit of K has crystallized out is then left to evap gradually give light yellow hard crystals, when exposed to light for some time turn green. on the surface — then if they are shaken or rubbed in the dark shine with a faint greenish light. They detonate at a high temp almost as strongly as gunpowder, they also decrepitate Its only a mixture so in making use various proportions Possibly good X ray or other fluoresce; Jnl Pr Chem XCVII 502 Martino

Ferricy K decomposed by light Cu Oplate. Cu spongy plate.
Sol of ferri K action Light decomp + O oxidizes Cu battery.

Saw abatement in Watts All heavy atomic wt metals of heavy density compared with those of light density + atomic wt oxidize with great difficulty. + these are more easily decomposed. This matches my displacement of ether theory —

Solvent Power glycerine Parts by wt.

20 arsenous acid	7 Mercuric Chl
20 arsenic	20 lead acetate
10 Benzoic a	50 K arsenate
10 Boracic	25 Br K
15 Oxalic	32 KCy
50 Tannic	40 KI
40 alum	50 Na Arsenate
20 Cad Nitry	60 Borax
20 Chl "	98 Carb Na
10 Bacl	20 Nachlorate
27 Hg Cy	50 Urea
10 Cupric acetate	50 Zn Cl
30 " sulfate	40 Zn I
	35 Zn Sulfate.

Sulphur dissolved in CS changed by light from amorph to Crystalline + precipitates. by X ray — Mag field etc moving field, stress,

Permanganate K is sensitive test for Organic matter — Kott.

For Phonogr record masters try fine precipitates which dry powdery by putting them in very thin soap solutions say. Pears or alcohol make thick mush by dipping there will probably be enough oil in mud oil to record also try water polishing viscous etc, also resins in alcohol + amorph substances in the book dissolved in various solvents possibly amorph precips dry could be moist with thin soap solution + well mixed with minimum amount of binder as in big matter + then whole pressed into a taper mould + shoved out + baked dry This is a good field as the record would have no spaces being either soap or precip — yet the quick process of precip would make it cut dry + powdery + easy — over

perhaps trihydrate of Al perfectly washed, silica etc would make work with Pearce soap in Alcohol, also form hydrox
$SrCo_3$ recently precip. Prussian blue in Alcohol perhaps something very much softer than Sodium soap would be preferable an oleate or a K soap – Ceresin

How would pressed amorph graphite cylinders do for phono recording – graphite purified by Jewett process

Since we have CP KOH, try Zn & CuO + see if Copper dissolves in KOH.

Try precipitated Arsenates for Mutograph they are amorph – by heating for sometime to 100. C. they become crystalline,

A Mutograph with cylinders highly buffed + metal pens of all metals, cylinders ditto + all metallically conducting compounds showed get some phenomenon at the points of contact,

See if Regular Mutograph action is increased or diminished by heat, try Condensers so no constant current passes. Try constant current excitation + then use telephone see if it works by varying a constant current, try current both directions see which works best. Use on Mutogr $SrCo_3$ then polish then wet with a solution not attacking $SrCo_3$ then with another solution that forms a precip in the pores, dry + do it again until get very near solid, see if it increases action possibly Sr Hydroxide will do it + putting air containing CO_2 get it to absorb to saturation drying between each wetting then finally moisten with Carb K this precips $SrCo_3$ + wash KOH for washing – Was Carb Lithia tried for a phono-Mutogr cylinder ——

April 4 1903

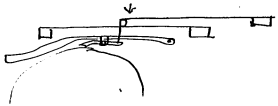
Think that Higham's phone device will work without leverage by running power cylinder high velocity & using a pad of a very bad Conductor of heat, – Rosin or analogous material for a power Cylinder The pressure heats the Rosin & this causes sticky friction greater than sequen Coefficient.

Perhaps a Molograph cylinder quite large would hold enough water to permit of working a week without wetting It might be wet with a wick brot up to the side by push button from outside try the wet sponge & closed Chamber this Rott should absorb it. try & lay aside & see how long it last testing from time to time

Possibly fusible metal 212 MP or less can be used as a phone cylinder for recording after burnishing to destroy Crystalline structure & heating up to the proper softening point for recording —

Oxide Mg Cylinder Record then wet with Conc MgCl
ditto phosacid or ZnO ditto ZnO + ZnCl.

Try 2" diaphrm for recording & put on a tightener that will tighten it nearly to limits of Elasticity. then have recording point do rest. defect heretofore that weight did not tighten enough.



April 4 1903

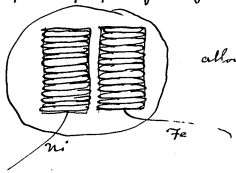
Sulphur is a good base to work with for making hard phono Records. it works nice & dont seem to hurt record. Melts about 250 Fahr. is very limpid like water & takes very fine impressions. the surface is glassy and very hard. It actually alloys with Naphthalene. this shows that there are probably many substances which can be alloyed with it, ahead. the S attack Cu on Cylinders after. Can wash off. could use a little nickel next to gold & back of Cu the Ni will be ok. Its extremely cheap & light spec. gravity — The fibres of Cotton will work in it. Try all combinations —

Storage Bat KOH is Mono has one hydroxyl whereas Ba has 2 hydroxyls or OH ions hence 2% of Ba equals nearly 4% KOH perhaps by overcharging Ba OH could be concentrated inside & thus get more OH inside than by KOH. think ahead try it again alone without KOH see what Can be done

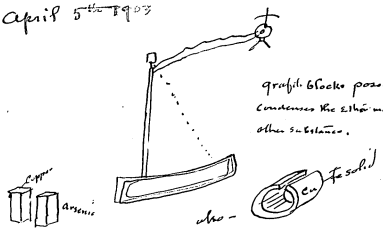
Try Storage battery with considerable Zn hydroxide dissolved in the KOH, possibly the Zn Ion will act to reduce the FeO & thus stop loss by concentration effects

Ammonia NH_4OH. try various quantities Ammonia in KOH with battery & make Curves — also solely a BaOH solution with various amounts of Ammonia —

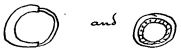
Have Fred OH make some packets with old smooth die or get some of new pkts from Glen ridge & pack face to face & test.



April 5th 1903



2 substances one condensing the Ether the other displacing the 2
try various metals + non metals acids ~~amalgams~~ in Tubes etc
at right angles + otherwise also try all the metals in U shape
for kick when magnetized by very strong coil –
also closed rings of cu Ether Condensing + displacer wound with coil
get kick also



also 2 metals one of which displaces Ether less than the other
Cu Pb – etc

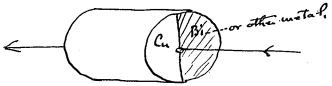
Try little Zinc hydroxide – dissolved in KOH in Ni Fe ~~Storage Battery~~

Run Curve disheq + charging Ni Fe battery in partial vacuum –

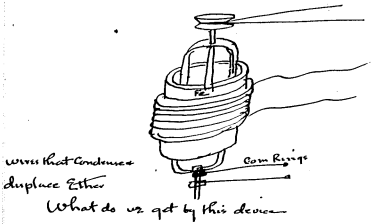
Does silent discharge – giving metallic vapor plating phono
records give spectrum of the metal.

If tripolite proves a success for plating ~~try~~ Copper plating.

If Ether is displaced by Cu a 20 lb Cylinder with 1/32
hole thro shall affect transmission of a beam of light thro

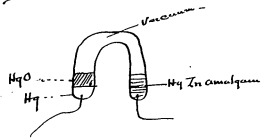


Perhaps a swinging pendulum with Cu or other metal to pass between the Contrivance could get swings per minute when Electricity might not be given or produced only heat,

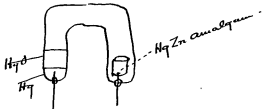


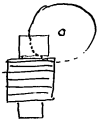
What do we get by this device

Intrying Incandescent Lamps with Center wire + alternating Current as a converter have globule Hg inside to increase Conductivity



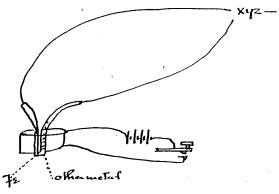
Vacuum Stopcock,

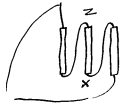




Rubber disk in field - points to Collect static,

April 5 1903





Nernst magnesia heat X end hotter than Z and remeasure thermo voltage,

Possibly peroxide lead in fine powder mixed with Zinc dust + put in Vacuum undergo slow oxidization in presence small quantity water vapor + give light, possibly other Combns better HgO + Zn.
Mg powder + PbO_2 BaO_2

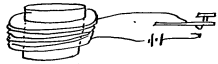
Wood Carbonized on a heated platina strip in Vacuo gives no residue of charcoal Why?

Try Scintillations in closed box with window with Oxygen absorbed by pyrogallic or displaced by H or CO_2 see changes in character of scintillation by absence of Combustion,
try Chlorine Try Sulfides Arsenides, Phosphides + alloys also Scintillations through a magnetic field static field.
X ray field —

As $Ni(OH)_2$ brought up in fused KOH. made anhydrous salt of peculiar character try all other hydroxides, perhaps this will prove to be a new and useful polymerizing reaction.
Test the NiO to see if its a Compound + has KOH in it —

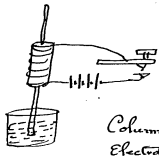
It is possible some curious things will be brought out by this reaction might try mixtures of hydroxides $FeOH$ + Fe_2O_3OH —
see if it goes to Magnetic oxide also that Chromic ox that is magnetic.

Possibly to get a cheap oxide of Iron Ferrous Sulfate could be precipd by NaOH, ½ washed then dried bone dry + then boiled in KOH, + washed the Colloid nature being destroyed by drying —

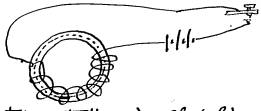


Cup inside coil with different things floating on CP water see if strong Current alters surface tension + cause solid particles to move also see if there is any difference between Electrolytes + non Electrolytes

Capillary see if coil + very strong current alters the Capillarity

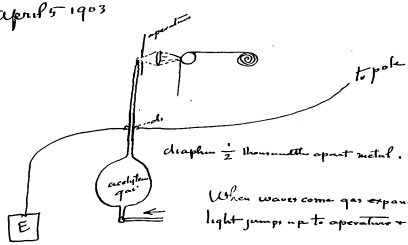


Columns various liquids —
Electrolytic + non Elec



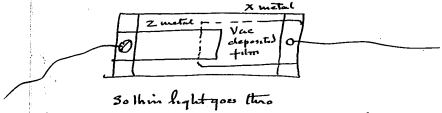
Closed capillary tube with Hg index Electrolytic + Non E
see what effect powerful Current in coil has on movement Hg

Try old Ethereal + Carb Sr Motorgh see how sensitive it is with spark gap + coil, a la wireless —



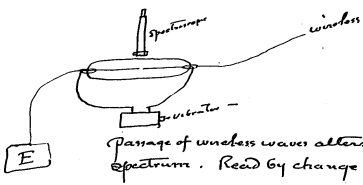
Instead of using diaphr of metal could use two volute spirals of wire on mica both in circuit like electrodynamometer when wireless waves come by mutual attraction & this drawing diaphrs together alters flame.

Put in sealed tubes CS with CP Copper reduced by H. also Fe Ni Zn powder Mg Al powder & set them aside for a month or as if no action warm up as far as can in safe chem both device allowing 4/5 the air space.



So thin light goes thro

deposit on glass mica etc various metallic films that will let light through then put in as a window of a dark box let light shine into dark thro film then pass current thro film also Current thro in mag field & without current.
X ray dif kinds light etc possibly one kind go thro not another



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On account of the tenacity of trans amorph soaps there will be a tendency for knife to dig in & produce vibrations What is wanted is a substance that has no cohesion Possibly Trihydrate of Alumina, perfectly washed— Colloid Silica semi dry or with Alcohol with proper % of water in it possibly mixtures of trans soaps + $SrCo_3$ or Alt. hydrate etc would answer.
Or $SrCo_3$ clay etc in water, Alcohol, Benzol etc or Tripolite or infusorial Earth, Kaolin + a little binder mixed with water— Could use gum arabic Albumen, Melotin, Caramel Acetate non Sugar Trihydr—
Perhaps rotating cylinder of metal kept warm + painted with the mixt as above be ok—
Lampblack in Benzol Bone black, floated clay China, clay

Try the various fusible alloys brought up nearly to MP for recording

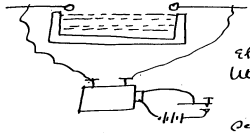
Perhaps Acetate amyl colloid. in can be loaded with soap in Al to give a good recording material

If an amalgam could be found that would not become granular it would be a good recording material, possibly compound amalgams would not be granular.

By using Chloroform, Benzol. Ethe + different Ethers Acetone Aldehyde CS. + dissolving different things in might might by dipping or painting get a very fine powder recording surface, the very rapid evaporation leaving stuff porous, possibly our present reproducing point made dead sharp would record Agel in Ethy on evap. might leave good surface.
If it is possible to get a sufficient porous substance such as soap left by a rapid evaporating solvent then a reproducing point ground rather sharp would for recording be much better than cutting the stuck the pores would be where the stuck would be displaced This is a good direction to work on burnishing action of recorder would smooth track + gold Vac deposit would be good—

A transparent soap dipped in very weak acid might take out enough Na to leave a very porous surface when dried.
Try Al on surface pretty well dried then dipped in alcohol etc
Gutta P Balata in CS on metal mandrel —

Possibly a Tellurium pen will record wireless if so speed could be unlimited



Try dif liquids
Electrolytic + use also
Ultra Violet shining on
surface.
See how effects jump spark.

also when ct passing thru liquid —

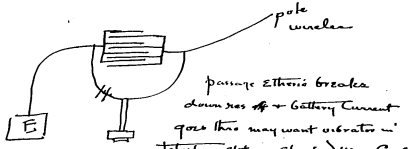
In big Cement Kiln put in small extra gun at hot end where coal goes in shoot regular chalk mix sufficient to form lining —

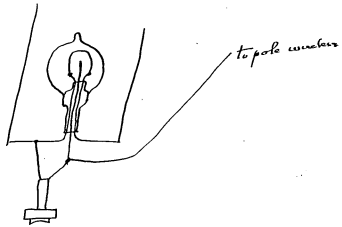
Retry all the metal points on $SrCO_3$ + KOH again —
also — NaOH BaOH SrOH LiOH also KOH in alcohol dissolved
ZnO CdO PbO SiO_2 SnO Manganite ThO also try K salts
of Cy BrCl SO_3 P Ar B.

Possibly phosphorescent sulfides give light by energy absorbed in changing the sulphur molecule or rather crystals from one form to the other. Possibly HgI if combined with another salt to get colorless crystals would phosphoresce by light.

Silver is deposited from every salt in crystals but every dif salt in NH_4 gives different form of crystal — See if phosphorescent when deposited in dark also X ray Mag — Heat, Elec fields —

Remember those sheets of graphite pressed at Menlo in big screw press what rapid conduction heat they had — burnt fingers — now they almost conduct so fast, possibly travels on the surface. There is something abnormal about rapid conduction of heat Investigate —





Perhaps Telluride & Selenide of Calcium will fluoresce also BaS:

Possibly Calcium Carbide put in CS or in other liquids & left would decompose & give crystals of Diamonds or boiled in Molten Sulphur in sealed tube or heated with Oxide Fe in sealed tube or in Molten Boric acid or Dry Chlorine? also thrown into Molten compounds Try Ca Carbide on lot of Solvents having no H_2O with salts & also with fused compounds — see if can alloy it —

It is a strange thing that the thin edge of a broken Carbon filament under the Microscope — is quite transparent but little specs only but general material is transparent. is it a compound?

I've read that Phosphoric Anhydride isn't a safe dessicating agent because it has other phos oxides which are volatile, it certainly smells strong — Party says that dry glacial phos acid is the best — I agree to this —

What would be the effect of immersing a Carbon filament in Molten sulphur & then bringing it up quick to high candle power —

Hammer says Radium changes white to red phos. if this is true, Radium may have the faculty of polymerizing matter & this matter depolymerizing gives phosphorescence —

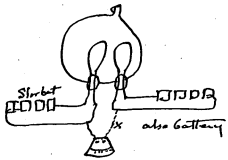
Use a shutter & test all fluorescen for X ray & light as well as phosphorescence — to ascertain their quickness —

If a layer 10/1000 thick of powdered $CaWO_3$ be placed between two plates of thin aluminium acting as a diaelectric will it cause deflection on the galvanometer when ray is vibrating on & off the Condenser One plate lead the Al plate facing Ray try Al & Zn plate, also Al + Cu + etc

If X ray causes air to conduct then a condenser with Al plates & charged with high Voltage with galv in circuit or Moleograph the X ray passing thro the Al plate makes an gap of Condenser discharged — use shutter of lead, possibly telephone work —

With Jwa go on with filing porous Carb fils —

Possibly with Osmium metal in Vac could flash surface of Os on fils & get more light —

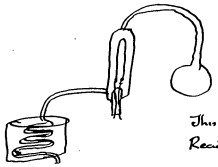


also battery at X get Res —

Silicon in sticks could flash deposit in Vac by coiled coat glass this might show up some phenomenon.
also Zr Ar Te Se the Si film might be oxidized & thus obtain thin film of pure silica for Experimenting

I wonder if strips of aluminium in Vacuum coated over with salts would not flash the salts + cause them to be deposited in films This would be immense for Experimenting give them a good trial all things that distil without decomposing would work + they would probably be amorphous + give films. Those soluble in water could be deposited on a film of something only dissolvable in a hydrocarbon + thus detachable — Sheffield would be immense ! ! Oxide films are possible ?

Here is a good field —

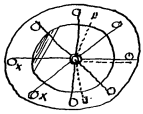


Distil different things over lighted filament also in Vacuo
This might give a new "Master Reaction" in Chemistry —

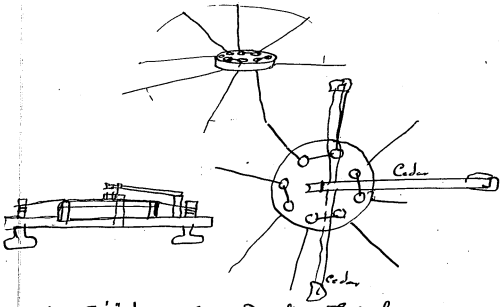
Refraction + dispersion of Selenium is 14 times greater than CS. The film of Selenium is no longer transparent after .003 thick Possibly Vac process will give Thicker
CuO has even greater R+D —

If by a camera a picture is focussed on a polished metal in an electrolyte it is possible on closing the circuit the surfaces could be very weak ly be oxidized show picture where light struck might ox more or less or a metal plated on —

Why not try a lead spectroscope slit + a prism of lead glass + photo X ray see if any lines also use fluoroscope —



New phonograph. Recording diaphm — One inch stretched .002 animal membrane with catgut or silk worm gut strings stretched across dia + tightened by thumb pieces like violin — Center has ring to which strings fastened by this means get enormous elasticity with an extremely light weight hence the strong waves are not distorted by momentum + overtones can be recorded in other words the lighter the diaphm + the greater the elasticity the more truly will the motions of the dia represent the sound waves — The recording knife is on end of Cedar lever fastened by shellac at both ends with side braces also of Cedar —



a 2 or 2½" dia can be made OK on this plan —

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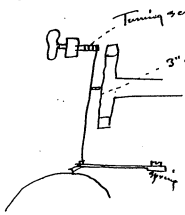

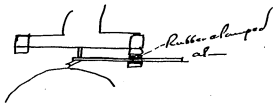

Perhaps Colloids like Alt. Silica ferrocyanide Prus Blue FerroCu mixed with a little glycerine & dried after pressing in cylinder would make good recording Cylinder the H_2O would dry & glycerine keep them from getting hard Dry in Vac with H_2SO_4 —

Perhaps could precipitate the Colloid in solution containing proper amount of glycerine after washing precip —

possibly $SrCO_3$ might work but guess only true Colloid work

How would $AlCl_3$ & glycerine do — There are other non drying things Geodes glycerine, $ZnCl_2$. $CaCl_2$ phos acid $LiCl$ —

It is likely there may be several precip of amorph soaps (metallic) that could be pressed in cylinder find a solvent for neutral stearate of Mg Al, Ni Zn Etc may be some organic solvents —

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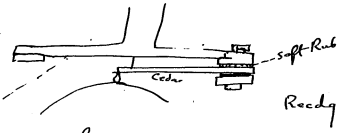
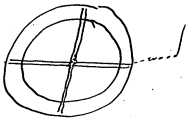
We want a very hard material for dipped records — we could then record lower & less loud + get better quality + then by leverage + multiplying devices get it loud again + thus get quality —

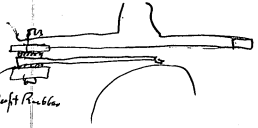
Make string levers lotagh + test piano - Woman's Voice etc + see about quality —

Try Reproducer with Rubber lever etc wood etc — so inertia less so it will give + soften the sharp waves the metal levers used is stiff + has no give it also gives a rebound + sound of itself when ball strikes sides of a deep indentation which it does not follow If an elastic material like hard rubber or cedar wood it would give a little + also not transmit molecularly the impact sound also soften the waves, owing to small specific gravity Rubber would be 5 + Cedar 7 to 8 times lighter.



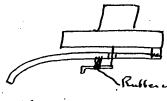
Dia large but elastically got by aligning





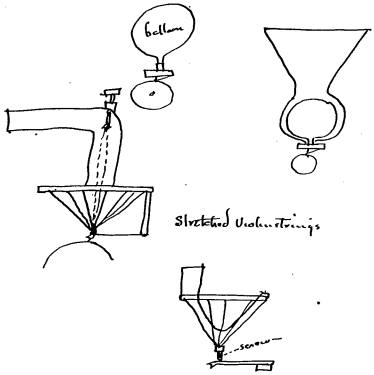
April 5 1907

Repeat



Wood or hard rubber lever —

Instead of a funnel why not use a rubber balloon —



We could make an indestructable record by using shellac Lampblack & Cotton or hair.

Precip some Na Stearate by HCl in water, wash & make cylinder by pressing diff pressures —

See finest graphite can get of amorph variety perhaps Brodie process use for recording. Masters might not need Vac process

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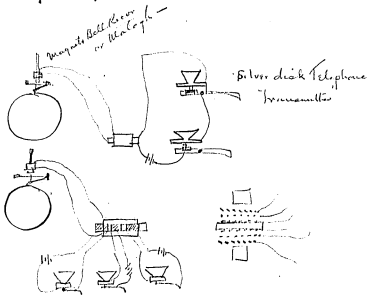
May be a good germ in using a capillary tube with say .005 hole running a fluid with volatile solvent & evaporate tube up & down by a div. The solution like thick copying ink dries almost instantly if trouble to get it to run. Need use current to drive thro osmotically in water sol + static for organic or air pressure perhaps little air warm blown over to evap + set

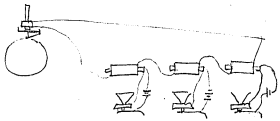
Solubilities Syrian in Chloroform ditto Benzol —
Water SrCo + Sugar
Colloids + sugar Concentrated Caramel. Gutta Per Chloroform
Pears soap in Alcohol – ditto hot –
$SrCO_3$ Chloroform + syrup (little to lock)
" Alc + Resin
" Water + gum arabic
Water + gum arabic alone.
$SrCO_3$ acetate mag to lock

Melting Points (Low)

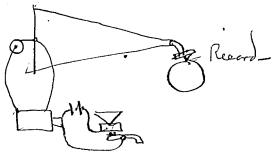
Sb trichl	72
Al Br	90
Sb tri br	94
Stannic Br	33
Tetraphosphorous Sulphide.	142
Ferrico phosphoric Chloride	98
Nitrogen Chlorophosphide	110
Titanophosphorous Chloride	86
Sb Oxychloride	89
Magnesium Chlorate	40
Phosphorous Sulfobromide	36
Pot Disulfate	210
Ammonium Nitrate	108 @ 145
Hydrogen Potass Anhydrosulfate	210
Potass Chlorosulfate	190
Alloys Pb Sn_6 Zn solidifies	168
up to Pb_{10} Sn_{33} Zn "	168
NH_4NO_3 + KNO_3 + $NaNO_3$	137 ?



Process for recording and phone for Musicians without funnel

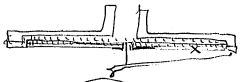


The Carbon Telephones have silver disks with lampblack surfaces same as made by Prof Bell,
If the chalk Telephone could use double diaphragm



May 26 1903 —

A Chalk Telefone dia gives true sound no matter size. The must be because its dead beat, perhaps a friction device can be put on a Reg Recorder for Phono that will make it dead beat or Large diaphm used. Strontium Carb pad might do it — perhaps wants something polished,



dia loose between 2 disks velvet pressed together hole thro bottom plate X dead beat

Nov 16 1903

Crystals which fluoresce to Radium Ray – Regular Slides with small tube of Radium about one milligram – procured from W.J. Hammer, unknown strength – wrapped in 2 thickness of black silk cloth –

Slide No 86 – 2674 – Hydrofluoric acid + Na_2CO_3 + Cr_2O_3
" 2646 " " + $U_2(NH_4)$
" 2640 " + K_2CO_3 + $CuCO_3$

Slide No 83 –
2367 Salicylic acid + Ba
" 2369 " + Cd
" 2368 " + Sr
2371 " + Zn + filtrate a.
2438 Benzolsulphuric + Ba Cl.

Slide 78
1696 – Ag Cl + Uranium Chloride.

Slide No 235.
" 21096 Chinolin Tartaric
" 21094 Strong = Calcium Sulpho-Methic – See book
" 21088 Carbazole
" 21087 – Strong = Strontium Salicylate
" 21070 Carbazole
" 21056 Diphenylamine.

Slide 73
1409 Na Br + Ni Br
1413 " + K Br
1406 K Br + Ag Br
1370 Sr Cl + Bi Cl.

Slide 98

30168 2 grms NaCl + 9 milg AgCl.

Slide 101

" 30324 2 grms KBr. (9 mgs.) AgCl
" 30373 2 grms Cd Iodide + 9 milg AgCl yellow Cryst
" 30374 2 grms " + 25 milg AgCl. "
" 30375 2 " " 1 milg Ur Sulfate
" 30418 Very strong fluorescer - deep yellow Cryst 2 grms KCl - 2 gr Ur Sulfate
" 30326 2 grms KBr + 50 milg AgCl.

Slide 144

" 33032 2 grms BaBr + 50 milg Lithium Borate
" 32967 Strong fluor 2 grms ZnBr 2 grms Ba fluoride
" 33042 2 grms BaBr + 2 grms Cerium Phosphate.
" 33021 2 grms BaBr + 2 grms Calcium Silicate
" 33039 Very strong fluorescer 2 grms BaBr + 2 grms Ba Fluoride

Slide 48

" 3709 Phtalic Acid + Hg CO_3
" 3706 " + Bi CO_3

Slide 13

4250 Cuprocyanide K + Sr Cy
4255 " + Zn Cy
4253 " + Al Cy - very strong fluorescer
4254 " + Cr Cy Very strong "
4223 Permolybdate Borate + Borate Antimony - yellow Cryst
4257 Cuprocyanide K + Ni Cy
4259 " + Fe Cy strong
4260 " + Ur Cy Very strong fluorescer
4261 " + Ag Cy.

Slide 95

8989 P-Cresolinic acid + Carbonates Na + Si? see book
22 Q Dissolved in salt B + R_2CO_3 ?
23 B " " + R_2S
8993 P Cresolinic acid + Carbonates of Na + Mg
8996 " " Na + Zn
46 Q Cuprocyanide K dissolved in Rag ~~[illegible]~~ strong
8994 P Cresolinic a + " Na + al
37 a. Cuprocy K mixed with Nitrate Mg —

Slide 134

32030 2 grms K Br + 50 milg Lithia Borate
32031 " + 2 grms "
32009 " + 3 milg Bi cl.
32050 " + 1 milg K fluoride
32079 " + 2 grms Sulphur —

Slide 161

33947 2 grams K Sulfate + 3 milg Si fluoride
33935 " + 3 " Sulphur
33934 " + 1 " "
33872 " + 50 " Hg cl
33869 " + 3 " Hg cl

Slide 138

32493 2 grms Na Phos + 2 grms Ba fluoride
32433 " K Phos + "
32467 " Na Phos + 25 milg Ca Phos
32498 not on Lithe book —

Slide 154

33603 2 grms Cadmium Iodide + 2 grms K fluoride
33588 " " + 9 mlg Ba Cl
33624 " " + 9 " Zn Cy
33581 " " + 3 " Ca fluoride
33642 " " + 9 " Hg Cl.

Slide 132 -

32056 2 grammes KBr + 1 mlg Ur Sulfate Strong
32070 " + 9 " Ca Cl
32068 " + 1 " Ca Cl
32069 " + 3 " Ca Cl
32071 " + 25 " Ca Cl
32063 " + 3 " Kcy
32103 " + 2 grams Ca Cl
32121 " + 2 grms Ca Silicate
32037 " " " ?
32044 " 1 mlg Ba Cl
31998 9 " Cathos
31997 3 " Cathos

Slide 80

1540 Bromide K + Cr Chloride.
1572 " + Ag Cl.

Slide 94

9002 P-Cressotinic a + Carbonate of Na + Bi Strong fluorescence
21 B
19 Q
Letters unknown 30 a
think Cupro cy K → 18 B
27 Q
9003 P-Cressotinic a + Carbs of Na + Cd
8898 Iodoform (To fluid) Iodoform + oxalate + K oxalate.
9001 P-Cressotinic a + Carbs of Na + Pb
3 Q

over

Slide 94 Continued

8995 p-Cresotinic acid & Carbs of Na + Cr.
22 B
17 B
40 B

Slide 115

31019 2 grms Zinc Phos + 13 milg Mercuric Chloride
30936 " Na Phos + 9 " CaCl

Slide 163

33877 2 grms K sulfate + 25 milg Bismuth Chloride
33950 " " + 50 " Cerium Phos

Slide 242

36702 2 grms Hg Arsenate + 50 milg Ca fluoride
36680 " " + 1 " CaCl

Slide 131

32193 2 grms Cadmium Bromide + 2 grms Ca Phos
31999 " KBr + 25 milg Ca Phos
32000 " " + 50 " "
31939 " NaBr + 25 " Ca Borate
31996. " KBr + 1 " Ca Phos

133 Slide —

All fluorescence - all KBr fused with other chems
None very strong —

Slide 93

34 Q very strong mixed with Nitrate Barium —
2 Q Strong
31 Q "
9004 Cresotinic a + Carbs Na + Ce
32 Q strong
18 a very strong
8999 Cresotinic a + Carbs of Na + Co
26 B Strong
24 a "
29 B
9000 Cresotinic acid + Carbs of Na + Fe —
33a
30 B
28 B
38 Q
42 Q Strong
43 a strong
23 a strong

Slide 142

32662 2 grms Lead Phos + 1 milg Ce Phos
32133 2 grms Strontia Br + 2 grms Zn Cy Very strong
32726 2 " Li Br + 50 milg Baff.
32613 2 " Zn Phos + 2 grms KCy
32733 2 " Li Br + " K Fluoride
32139 2 " Sr Br + 1 milg Ce Phos.

Slide 74 —

1189 K sulfite + tin Chloride
1186 K Sulfite + Cu Sulfate
1178 Na Bisulfite + Sr Cl.

Slide 153 —

33616
33611
33629
33607
33595 — all Cadmium Iodide fused with various chems
33610 — "
33619
33594
33605
33606
33653
33592
33586
33618
33613
33612
33623
33620
33602

Slide 145

	32871	2 gr Ca Br + 2 gr Zn Cy	
	32877	" + 50 milg Ca Fl.	
	32819	2 grms Cadmium Bromide + 3 milg Zn Cy	
	32858	" + 50 "	Sulphur
	32850	" + 9 "	Ca Cl
	32861	" + 3 "	Ce Phos
	32834	" + 50 "	Sr Fl.
	32807	" + 3 "	Calcium Borate,
S. Very strong —	32825	" + 3 "	K Cy —
S. Very strong	32811	" + 2 grms	Calcium Borate,
	32837	" + 3 milg	K Fl
Dirty —	32933	2 gr Calcium Br + 3 "	Ce Phos.

Slide 53

4756 Cyanide Rubidium + Mg Cy
4684 Zirconium Cy + Cu Cy

Slide 22

Fair — 8072 P-Cresotinic + K_2CO_3 + $CaCO_3$
good — 8074 " " + $Al_2(OH)_6$
Very strong 8175 Boro-Benzoic a + K_2CO_3 + Carb NHy
Very dark Cryst 7967 Oxynaphtoic a + " + $CuCO_3$
8068 P-Cresotinic a + K + NHy Carbs
8066 " Carb K + Uranate Na
8065 " " + Zirconia (OH).

Slide 150

33302 2 grms Sr Iodide + 50 milg K Fl
33297
scarcely anything left — Crys. 33287 2 grms KI + 3 " Ce Phos
33263 " + 3 " Zn Cy
33286 " + 1 " Ce Phos.

Slide 146

33123 2 grms Pb Br + 2 grms Sr Fl —
32895 2 grms Cd Br + 9 milg Ce Phos
32798 " + 50 " Ca Fl.
32860 " + 1 " Ce Phos
32845 " + 5 " Ba Fl
32852 " + 50 " Ca Cl
32839 " + 25 " K Fl
32859 " + 2 grms Sulphur
32804 or 32864 — " + 50 milg Ce Sulphate
32846 " + 50 " Ba Fl

Slide 46

Strong Sensitive 4265 Cuprocyanide K + Sb Cy
Strong Sensitive 4270 KCy Cu Cy 2 dissolved + same salt,
Very Brown Cryst Faint 4271 KCy. CuCy 2 dissolved in HKO.
4274 KCy-Cu Cy 2 dissolved in Benzine.

Slide 55

6424- Sulphate of Uranium + Barium -
Very strong - strongest when tube 1st brought to it.

Slide 96

8992 P-Cresoline a + Carbs Na + Cd
Strong 27 B
8990 " Carbs Na + Bi
8981 Cuttfind -
28 Q
47 Q
Strong 24 B
8988 " + Carbs K + Nitly
Letters unknown probably Cuprocy + Hcy verifiers 45 Q
35 Q
Faint 20 a

Slide 8

6520 Salicylic acid + Pb CO_3
6517 " + Ur CO_3
6518 " + Hg O,
dark drab cryst Faint 6504 " + Ca CO_3

Slide No 11

Brown Cryst — 4442 NaCl + AgCl

Slide No 05

Strong 6433 Sulphate Uranium + Pb
Greenish Brown Cryst 6425 " + Ca
6439 " + Sn

Slide 191.

Strong 35371 – 2 grms K Tungstate + 2 grms Ba Fluoride

Slide 42

7320 Sulphanilic a + Si_2Co_3 + $CaCo_3$

7321 " " + $MgCo_3$

Slide 79 —

Fair 1538 KBr + KCl

1536 " + BiCl

Slide 162

33859 2 grms K Sulfate + 5 mlg CaCl

Fair 33948 " + 9 " Ce Phos

33937 " + 25 " Sulphur

Slide 47

6003 P-Cresolinic a + UCo_3

6007 " + $CaCO_3$

grounds dirty 4808 Thorium Cy + Cu Cy

Slide 12

4099 Permolybdate Chloride + Cr_2Cl

Strong 4267 Cuprocy K + Molybdic Cy

Strong 4268 " + Ce Cy

4148 permolybdic Tartrate + Zn Tartrate

strong 4246 Cuprocy K + Na Cy

4249 " + Ba Cy

Slide 30

4064 Cy Ur + Tin

dirty dark 4051 " + Mn

Strong 4263 Cuprocy K + PbCy

4268 " " + Ce Cy

2106 6'6 15

79333

Slide 36

Very strong 4264 - Cuprocy K + Bi Cy

Slide 19
very green 5381 - Phos acid + Carbo Al + Uranium

Slide 218
20139 - Lithium Arsenate.

Slide 15
Strong 7333 Phtalic acid + K_2CO_3 + Sr_2CO_3
Phosphorescence - retains light ? ?

Slide 10
Strong 7579 Sulphosalicylic a + Zr (OH) ? ?

Slide 28
dark brown 7505 Sulphormic acid + U (OH, Na)

Slide 29
7566 Sulphosalicylic a + Zn CO_3
7564 " + Al_2 (OH)$_6$
7557 " + Na_2CO_3
7596 Sulphopseudocumol + Pb CO_3
7591 " + Zn CO_3
7556 Sulphosalicylic a + K_2CO_3

Slide 236

Very Strong – 21135 Uranium acetate
21127 Mercury Bichloride.

Slide 238

Very Strong – 21217 Uranium acetate

Slide 38 –
3953 Hypophos acid + $MnCO_3$

Slide 59
3153 – Phos acid + $MgCO_3$ + $PbCO_3$

Slide 40.
3994 p-Cresotinic a + $CaCO_3$
3995 " + $MgCO_3$
3996 " + $Al_2(OH)_6$
3997 " + $Cr_2(OH)_6$
3998 " + $ZnCO_3$
3992 " + $BaCO_3$
3991 " + Sr_2CO_3
3990 " + NH_4CO_3
3989 – not in

Slide 3 –
Strong yellow 6157 m-Cresotic acid + Sr_2CO_3
6160 " + $Al_2(OH)_6$
6164 " + $ZnCO_3$

Slide 81

2231 Uran Oxyfluoride –
2238a Tantanic a & Mg & Q ? ?

Slide 100

Strong – 30169 2 grms Strontium Chromate & S
25 mlg AgCl – 1

Slide 237

21154 Ca Tungstate. dont think its fused

Slide 227
yellow 20709 Phenanthrene.

Slide 215
20190 Phtalic acid

Slide 228 "
20758 Phenanthren

Slide 91

2686 Hydrofluoric a & Na_2Co_3 & CdO
2685 " " & HgO

Slide 92
Very very bright 21 Q – pby CuCyKCy
2706 HFl acid & NH_4 & Pb_2O_3 ?

Slide 229

20809 Cd Salicylate
Strong 20807 Sr "
20806 Na Paracressolate
20782 Ammonia Salicylate

Slide 113

30835 2 grms Ba Phos + 25 milg AgCl
30836 " " + 50 " "

Slide 112

very green 30890 2 grms Ca Phos + 50 milg Uran Sulfate
S S, I strong 30671 2 grms NaCl + 3 milg KCy S S
S strong 30791 2 grms Sr Phos + 3 milg AgCl.

Slide 103

30322 2 grms KBr + 1 milg AgCl

Slide 111

30794 2 grms Sr Phos + 50 milg AgCl
30793 " + 25 "
strong 30790 2 grms Li Phos + 1 "
30797 2 grms Al Phos + 3 "

Slide 127

strong 31683 2 grms CdCl + 2 grms Ca Phos

Slide 109

30047 K Sulfate
30017 2 grms Zn Br
S 30009 2 " K Chloride S

Slide 202

35881 2 grms Na Nitrate + 2 grms Uran Sulfate

Slide 200

35 842 2grm Na Nit + —mlg CaCl. S S

Slide 195

35559 2grm K Molybd + 3 mlg Uran Sulfate
35503 " " + 2 gr Calcm Borate
S Strong 35473 " " + 2grm CaCl.

Slide 203

quite strong 35971 2gro K Nitrate + 2gr Uran Sulfate
35970 " + 50 mlg "

Slide 217

Very Strong 20234 Iod-Sulphosalicylic acid
Strong 20214 Zn Salicylate
Strong - 20194 Fluorene S S

Slide 230

20834 Hydrastin Purus
white 20821 Acenaphtene.
yellow 20820 Ammon Mellitate

Slide 213

20002 Diphenylamine
20001 Aniline green

Slide 249

37032 2gro K Boate + 5 mlg Uranyl sulfate

Slide ~~218~~ 183

Hettlemyer fusions delaqueseed very little stuff left

34927	2 grms NaCy	+ 1 milg KFl
34933		+ 1 " ZnCy
34924		+ 25 " SrFl
34940		+ 3 " KCy
34891		+ 1 " Li Borate
34947		+ 9 " CaPhos
34915		
34862		+ 3 " CaCl
34954		+ 5 " Ce Phos
34857		+ 9 " AgCl
34935		+ 9 ZnCy

Slide 181

Delaqueement very little left —

34953	
34859	
34858	
34928	
34941	Cant get break out of slide —
34889	
34883	
34881	
34901	
34885	
34886	
34907	
34911	
34913	
34931	

Slide 180

34919 2 grms NaCy & 5 mlg BaFl
34916 & 3 " "
34936 & 25 " ZnCy
34904 & 3 " Ca Silicate
34670 2 grms K arsenate & 50 mlg Mercuric Chl.

Slide 58 —

3167 - Phos acid & $ZnCO_3$ & $PbCO_3$

Slide 75

1226 NaCl & MnCl
1227 " & PbCl.

Slide 66

Very Very Bright 2706 Hydrofluoric acid & NH_4OH & HgO.

Slide 35 —

4856 Thallium Cy & CaCy
4859 " & SrCy
4858 " & ZnCy
4860 " & NiCy
Bright 4868 Uranium Cy & HgCy
4808 Thorium Cy & CuCy

Slide 54

6064 Tetrachloronaphthalic acid & Sr_2CO_3
6000 p-Cresolsulfonic acid & $NiCO_3$

Slide 170

34040 2 grms Na Sulfo.^{5} + 50 milg Sulphur
34021 2 " Na Sulphate + 3 " KCy

Slide 152

33589	2 grms Cadmium Iodide +	25 milg	BaFl
33652	"	1 "	Ce Phos
33587	"	3 "	BaFl
33604	"	1 "	Ca Borate
33596	"	50 "	Sr Fl
33634	"	1 "	Sulphur
33563	"	3 "	Uran Sulfate
33622	"	1 "	Zn Cy
33640	"	1 "	HgCl
33630	"	9 "	KCy
33598	"	1 "	KCy
33590	"	50 "	BaFl
33600	"	9 "	KFl
33599	"	3 "	KFl
33601	"	25 "	KFl
33564	"	9 "	Sulphur
33615	"	2 grms	Li Borate
33578	"	5 milg	Ce Phos
33654	"	9 "	Ce Phos
33574	"	1 "	Ce Phos
33628	"	1 "	KCy
33614	"	50 "	Li Borate

Slide 189

Strong	35269	2 grms Na Tungstate	2 grms CaCl
Fairly Strong	35305	"	2 " CaFl
Strong	35293		2 " Ca Borate
Strong	35290		9 milg Cu Borate

Slide 160

Strong	35395	2 grms K Tungstate + 2 grms Ca Borate
Fairly Strong	35389	" + 2 " Ca Silicate

Slide 101

Very Very strong	4263	Cuprocyanide K + Pb Cy
Strong	4254	" + Cr Cy
Strong	4264	" + Bi Cy
	4268	" + Ce Cy
	4265	" + Sb Cy
Strong	4260	" + Ur Cy
	4253	" + Al Cy

Slide 173

34311 2 grms Cu Iodide + 2 grms KCy

Slide 182 =

	34938
	34838
Heilmann Tons	34819
Finsen	34853
	34934
Very Little	34839
	34840
	34843
Left	34869
	34893
delayment	34849
	34888
	34870

Slide 31

Strong 8079 P-Cresolinic acid + K_2CO_3 + $MnCO_3$
8075 " " + $Cr_2(OH)$
8070 " " + $BaCO_3$

Slide 172

33981 - 2 grms Na Sulphate & 2 grms Uran Sulphate

Slide 68 ✓ possibly 68 + 69 Uranium compound these are Uranium Minerals

1042 Cinetni Chlorid
1041 Acetate of "Josice" S see book
1040 Na Acetate
1039 "Robi" S
1038 Carb Ba
1032 Na Bicarbonate.

Slide 179

34743 2 grms K Arsenate + 2 grms Uran SO_4

Try Radium on Check letters - Use thick Lead rotating shutter - also Use telephone with different substances placed on diaphram + with listening Tubes throw Radium ray on + off the substances by a revolving lead shutter + see if Can hear any sounds Same with light from arc close to. substances

Photo all slides using Barium Platinum Cyanide, Wolframite, Tungstate Ca + Zinc Sulfide Screens to and —

1903 –

Nov 26 – Experimtg with Slides with Tin & also Wolfrmite found on Slide 125

that those of Hetherington fusions very sensitive to scratching giving light on slightest touch of Crystals

Best, 2 grms Chloride Copper + 3 or 4 mg Ba Fluoride
also 2 grms Manganese Chloride + 50 mg Lithium Borate
also 2 grms Copper Chloride + 1 mlg $ZnCl_2$

in first case mica was split + therefore crystals were free, the other not yet perhaps around Edges some holes in Mica – my Impression is that there are lots of Crystals sensitive to abrasion to give light. Have Dolly make lot tubes, get Vac + seal – by shaking get light

Dec 6th 1903

Try revolving lead shutter + Radium on Ebnograph – Comb Sr – ditto X ray –

Try X ray also Radium under oil – film dope receptible –

Get the new Electrode Ultra Violet Quartz window device show by Hammer + Try all slides for fluorescence + phosphorescence –

Make disk of lead with sections varying thickness – test relative strength of fluorescence for X ray + Radium –

Try Effect of heat on fluorescence with X ray or Radium

Make slides of washed Crushed ore

ditto Sands from every source

Ditto, samples of granite in Lab – ditto
Collect Country + Coal rock –

Get samples from Tertiary Strata Every Kind
Iron – make slides of crushed screened & washed
ditto –

SB = Mix with Bismuth hydroxide every other
hydroxide in various proportions to bring
up the Vatherge,

Try Ultra Violet light with points of all possible
metals, also for photo through opaque subs with slides –

If Water from Rocks is Radio active possibly
Scale from boilers or mud from Mud drum or
Scale from pressure will give Radium –
possibly valuable part wood ashes – slag from
Sudbury – Blast of slag – slag from Oxford.
Roaquefiel gold alay –

Notice K Sulphate, KBr SrCl. SrBr
Cd Iod fluorescence perhaps impurity in them
by many crystallizing might cause active
ingredient,

Radium seems to turn Uranite deep green at least
little piece I used on slides which was white at
first is now yellow green,

Try jump spark points adjusted so no spark +
Ultra makes it jump – then try Radium –
also telephone, balanced + Vibrator, gap on each
side longer one gap by Radium + Sensitive use for
testing for Radium in Rocks etc,

Note
Strong Radium does not affect Voltage or Capacity of E Storage Battery —

Try strong radium tube near end of a wire with shutter Gelatine + X Y Z rays —

Try Radium on microscopic Crystals see R + Voltage changed

See if Radium affects Compass needle;

It is strange that 9% of Bismuth hydroxide mixed with 91% of Ni Hydroxide at the regular graphite showed for equal weights give 10% more milliamperehours than Nickel Hydroxide alone, what is it - porosity perhaps

Try crystalizing fluorescing or other chems in Conc X ray also Radium rays from drops of Conc solution on Micro slides - one under radium one without then examine microscopic -

Also crystalizing within a Coil connected to alternating Current in galv room - use small reg watch glasses & drop outside not in coil -

ditto try fluorescence crystals then trace of it increases power of fluorescence, use a check glass outside Coil —

Make some ammonium sulphur & let it change to Crystalline under photo plate —
Try if ray comes from a Regent drop or if it will fluoresce from X ray or Radium —

Make a slide of discs of metals - photo alone — then in Mag field then in alternating Coil

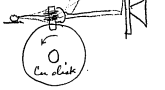
Zirconate of Zinc showed to be good fluorescence for radium + X - also properly made Tungstate Zinc —

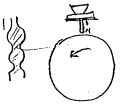
Dec 21 1903 –

Possibly the emanations from tin etc may not photo or produce fluorescence or ionize but it might change friction which it apparently did on the old apparatus in 1873 –
Make a Mahogany wooden barrium platinide + tin with revolving shutter, + telephone – possibly a very good machine could be got up that would be handy + have many embossments on one disk + great many reproducibles disks then could test friction from rays given out by thousands of materials very quickly –

Possibly a cell of celluloid could be used with diff polarizing solutions + use shutter + telephone + let ray strike the polarized polarized electrode –

See if absorption bands changes in liquids where there are slow precipitations going on or about to come down like phosphomolybdate amm test for phos etc –





grooves round frame filled with Hydrogen-saturated or coated over –

magnet to throw arc down

Rotating arc for drilling in Rock in place keystone drill –

Speculative money nothing notably practical